The Polyzoa of Madeira and neighbouring Islands.

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(Plates 33–42.)

[Read 4th February, 1909.]

My late friend Mr. J. Yate Johnson was well known on account of his researches into the Fauna and Flora of Madeira, and especially with respect to the Marine Vertebrates and Invertebrates. For fully forty years he collected the Polyzoa, depending chiefly on fishermen who brought to him the refuse from their lines. I am not aware that he ever dredged, but it is not unlikely that the Rev. R. Boog Watson, when superintending dredging for the sake of the Mollusca, gave him Polyzoa which were procured. From time to time during those forty years Mr. Johnson submitted his specimens for determination and description to Professor George Busk, the Rev. Thomas Hincks, and Mr. Arthur W. Waters; but shortly before his death he himself published a short paper on a few Cyclostomous species. The following is a list of the literature which relates to the Polyzoa of the Madeiran fauna:—

Busk (Prof. George).—"Zoophytology." Quart. Journ. Micros. Sci. vol. vi. 1858, pp. 124–130, pls. 18, 19.

—— "On some Madeiran Polyzoa." Ibid. vol. vi. 1858, pp. 261–263, pl. 20.

—— "On some Madeiran Polyzoa." Ibid. vol. vii. 1859, pp. 65–69, pls. 22, 23.

—— "Catalogue of the Polyzoa collected by J. Y. Johnson, Esq., at Madeira in the years 1859 and 1860." Ibid. vol. viii. 1860, pp. 280–285, pl. 31.

—— Id. (*continued*). Ibid. vol. ix. 1861, pp. 77–80, pls. 32, 33.

Hincks (Rev. Thomas).—"Contributions towards a General History of the Marine Polyzoa: I.—The Madeiran Polyzoa." Ann. & Mag. Nat. Hist. ser. 5, vol. vi. pp. 70–80, pl. 9 & pl. 10. figs. 1–4.

Waters (A. W.).—"Observations on the Membraniporidæ." Linn. Soc. Journ., Zool. vol. xxvi. 1898, p. 654. In this paper eight species were recorded from Madeira, of which four were new to that fauna.

—— "Bryozoa from Madeira." Journ. Roy. Micros. Soc. 1899, pp. 6–16, pl. 3.

Johnson (J. Yate).—"New Cyclostomous Bryozoa found at Madeira." Ann. & Mag. Nat. Hist. ser. 6, vol. xx. 1897, p. 60.

Having been ordered to the south after a very severe illness, I went to Madeira in March 1897, stayed there ten weeks, and returned in May. Weather permitting, I dredged westwards as far as Praya Formosa, and eastwards to Labra Bay. But my chief work was nearer to Funchal itself. Here I found good ground in the neighbourhood of the coaling-ship, and among the material was the coal which had fallen to the bottom, to which many erect and creeping forms attach themselves. Still richer ground, and that to which I devoted my chief attention, was in 50 to 70 fathoms off the

Lazaretto and thence to Cabo do Garajão. I had with me a hand-winch, which so immensely lessens the labour of hauling in the dredge. Aided by this I had dredged without difficulty in the Norwegian fiords down to nearly 400 fathoms, and at Madeira—given fair weather—I found no difficulty in working at the previously mentioned depths of 50–70 fathoms. I therefore determined to try deeper water. Success so far attended the effort that a small quantity of the bottom was brought up from between 200–300 fathoms *. Unfortunately, at the second attempt the dredge caught on a rock, and a breeze having sprung up, it was lost. I suppose that this was the first time such a depth had been worked from an open four-oared boat in the Atlantic Ocean. The little material which had been procured was a revelation. Here were so many old friends that I might have imagined that I was again dredging in a Norwegian fiord. There were present *Arca pectunculoides*, *Portlandia messanensis*, *Cuspidaria rostrata*, *Pulsellum quinquangulare*, &c., together with the Polyzoon *Tessarodoma boreale* and the Foraminifer *Cyclammina cancellata* of large size and in great abundance, as well as other species of Mollusca, all new to the Madeiran fauna. The shores of Madeira are for the most part precipitous, and there are not many spots where shore-hunting can be carried out, but at Gorgulho I found profitable ground.

It remains for me to thank kind friends who have rendered me assistance.

I am greatly indebted to Padre Schmitz, who has got together such an excellent museum of the local fauna at the Seminario, where also are now to be found the collections of Mr. J. Yate Johnson. In the spring of 1908, when I was on a short second visit to the island, Padre Schmitz not only allowed me to examine at my leisure the whole of the Polyzoa named and unexamined which were contained in the museum, but also permitted me to bring away with me certain type specimens for closer examination and comparison. I am also further indebted to him for the gift of many interesting specimens.

At this same visit to the island I made the acquaintance of Senhor Adolpho Cæsar De Noronha, a most enthusiastic zoologist and geologist, who has during the past year sent to me several consignments of Polyzoa, collected by himself not only at Madeira but also from the islands of Porto Santo and the Salvages, of the marine fauna of which we have been up to the present time in almost absolute ignorance.

I have to thank Mr. R. Kirkpatrick, of the British Museum, for the valuable assistance which he has given me by enabling me to examine many types of

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* It must be understood that the depths given in this paper are merely approximate as no soundings were taken. They are estimated first by use of the chart, and secondly by the amount of line employed. In the dredging here referred to nearly 600 fathoms of line were let out.

Busk's and of Hincks's species, and also for very kindly consulting for me two works which were not in my own library.

Dr. S. F. Harmer, who has made a special study of *Tubulipora*, has kindly examined for me the two or three specimens I had belonging to that somewhat difficult genus, the species of which have been so greatly confused.

The total number of species of Polyzoa contained in this catalogue is 139. Of these Professor Busk had included 45 species in his papers of 1858–1861 Mr. Hincks enumerated 24, of which 21 were additions to the fauna. Mr. Waters named 52, of which 28 had not previously been recorded; and Mr. Johnson described 7, of which 6 were not previously known. This paper contains 39 species new to Madeira, making up the total number previously mentioned—139, of which 114 are recorded on my own authority.

In the catalogue of species which follows, the capitals B., H., W., or J., after the name of the Polyzoon indicate that it has previously been recorded from Madeira by Busk, Hincks, Waters, or Johnson, as the case may be.

POLYZOA.

Subclass I. ENTOPROCTA.

ASCOPODARIA GRACILIS (*M. Sars*).

The Madeiran specimens are of larger size than those from more northern habitats, but not nearly so large as *Ascopodaria* (*Barentsia*) *major.*

Subclass II. ECTOPROCTA.

Order **Gymnolæmata.**

Suborder I. **CYCLOSTOMATA.**

CRISIA EBURNEA (*Linné*).

Common, tide-marks and shallow water.

CRISIA ELONGATA, *H. M.-Edwards.*

In 40–70 fathoms, but not common.

CRISIA FISTULOSA, *Heller.* (Pl. **35**. fig. 6.)

1867. *Crisia fistulosa*, Heller, Bryoz. Adriat. Meeres, p. 118, pl. 3. fig. 5.
1879. *Crisia fistulosa*, Waters, "Bryoz. Bay of Naples," Ann. & Mag. Hist. ser. 5, vol. iii. p. 268, pl. 23. fig. 3.
1906. *Crisia tenella*, Calvet, Bull. Mus. Hist. Nat. p. 218, and 1906. Expéd. Scient. 'Travailleur' et 'Talisman,' Bryozoaires, p. 460, pl. 30. figs. 1, 2.

A few small pieces from deep water. The specimens have been compared with a cotype in my collection received from Professor Heller. This is not the *Crisia fistulosa* of Busk (Cat. Marine Polyzoa Brit. Mus.: III. Cyclostomata, p. 5).

STOMATOPORA GRANULATA (*H. M.-Edwards*). J.

1897. *Alecto simplex*, J. Y. Johnson, "New Cyclostomous Bryozoa found at Madeira," Ann. & Mag. Nat. Hist. ser. 6, vol. xx. p. 60.

I have examined Johnson's type, and have found specimens of it in deep water, but can see no specific difference from *S. granulata.*

TUBULIPORA APERTA, *Harmer.*

1898. *Tubulipora aperta,* Harmer, Quart. Jour. Micr. Sci. new ser. vol. xli. p. 101, pl. 8. figs. 2, 3.

A single specimen only obtained, which appeared to be this species, but to make certain I sent it to Dr. Harmer, who confirmed my identification.

TUBULIPORA DRUIDICA, *Busk.* B.

1859. *Tubulipora druidica*, Busk, Quart. Journ. Micr. Sci. vol. vii. p. 67, pl. 22. fig. 9.

I have been unable to find the type specimens of this species. I leave it in *Tubulipora,* as placed by its describer ; but it can scarcely belong to that genus as now understood.

IDMONEA LILIACEA (*Pallas*).

This is *I. serpens* of authors. Dr. Harmer has placed it in *Tubulipora.* It is not uncommon at Madeira.

IDMONEA ATLANTICA, *E. Forbes.* B. (Pl. **33.** figs. 1, 2.)

Two or three small specimens in deep water. A portion of one of these is figured for comparison with the species which follow and to show the oœcium.

IDMONEA MENEGHINII, *Heller.* (Pl. **33.** figs. 3–5.)

1867. *Idmonea Meneghinii,* Heller, Bryoz. Adriat. Meeres, p. 44, pl. 3. figs. 6, 7.
1880. *Idmonea Meneghinii,* Waters, "Ovicells of Cyclostomous Bryozoa," Linn. Soc. Journ., Zool. vol. xx. p. 278, pl. 14. fig. 2.

The *Idmonea* which I here name *I. Meneghinii* is certainly figured very badly by Heller, but a comparison with a small fragment received from him at the time of the publication of his memoir establishes the identity with certainty. As developed at Madeira it is an elegant and beautiful form. It consists of very slender branches, the lower portions of which scarcely exceed the upper in breadth, which is usually less than half a millimetre. The growth of the whole zoarium has an upward tendency, and the division of the branches is usually at a very acute angle. The cells are generally arranged two or three together, and their lower portion, which is united with the branch itself, is strongly arched, while their apices are projected at the sides almost at a right angle ; the free portion is short, generally not exceeding half the diameter of the branch. The frontal surface is sparingly punctured ;

on the back the zoœcia are marked out by ribbed sculpture, and there is almost an entire absence of punctation. A fine specimen measures 20 mm. high and 12 mm. wide.

Dredged in about 70 fathoms, and I found very fine specimens in the Funchal Museum.

Idmonea fragilis, Calvet (Expéd. Scient. 'Travailleur' et 'Talisman,' Bryozoaires, 1906, p. 470, pl. 30. fig. 10), would seem to be this species with the cells longer than usual.

IDMONEA CONCAVA, *Reuss*. (Pl. **33**. figs. 10–12.)

1879. *Idmonea concava*, Waters, "Bryozoa from Bay of Naples," Ann. & Mag. Nat. Hist. ser. 5, vol. iii. p. 274.

Clusters of zoœcial tubes usually consisting of three; the clusters are more widely separated from each other than is usual, their lower portion attached to the branch straight; free portion very little raised and not extending beyond the sides of the branch; surface with scattered punctures. Back remarkably flat or even slightly concave, sculptured with longitudinal lines and punctate. The examples found agreed with Neapolitan specimens given me by Mr. Waters. Dredged in 50–70 fathoms.

IDMONEA PEDATA, n. sp. (Pl. **33**. figs. 6–9.)

Zoarium small, very rarely branched, usually consisting of a single stout stem 10–12 mm. long, which, when looked at laterally, has a wavy outline, bending down here and there are curious foot-like supports. These pedicels are 2–4 in number to each specimen, and are apparently used for attachment to some object, but although I have examined about 200 specimens, I have only found one actually attached; this example was situated on the Foraminifer *Polytrema miniaceum* of Pallas. The zoœcial clusters contain normally three tubes, which are of moderate length. The under surface is slightly punctated, and sculptured longitudinally and also with transverse curved lines.

Dredged abundantly in about 70 fathoms to the east of Funchal, off the coast between the Lazaretto and Cabo do Garajão.

FILISPARSA IRREGULARIS (*Meneghini*). (Pl. **34**. figs. 1–7.)

1844. *Idmonea irregularis*, Meneghini, Polipi della Fam. dei Tubuliporiani, [sep.] p. 12.

1867. *Idmonea irregularis*, Heller, Bryoz. des Adriat. Meeres, p. 121, pl. 3. fig. 6.

1875. *Idmonea irregularis*, Busk, Cat. Marine Polyzoa Brit. Mus., iii. Cyclostomata, p. 13, pl. 12.

1882. *Tervia Folini*, J. Jullien, "Drag. 'Travailleur,' Bryoz.," Bull. Soc. Zool. France, vol. vii. p. 5 (separate copy), pl. 13. figs. 8, 9.

1882. *Tervia superba*, J. Jullien, ibid. p. 4, pl. 17. figs. 74, 75.

1888. *Idmonea irregularis*, Waters, "Ovicells of Cheilostomous Bryoz.," Linn. Soc. Journ., Zool. vol. xx. p. 279, pl. 14. figs. 5, 6 (as *Filisparsa irregularis*).

1896. *Tervia Folini*, Calvet, Camp. du 'Caudan,' Bryozoaires, p. 265, pl. 7. figs. 1–3.
1906. *Filisparsa irregularis*, Calvet, Expéd. Sci. 'Travailleur' et 'Talisman,' Bryozoaires, p. 472.

Zoarium branching at wide angles of 45° or more; zoœcia in groups usually of three (2–5); other zoœcia are scattered on the face of the branches; punctured both above and below, and dorsally marked by pellucid lines indicating the margins of the zoœcial chambers.

Var. 1, typical. Zoarium stout, groups of zoœcia shorter than the diameter of the branch, not united closely together in wing-like arrangement (Pl. **34**. figs. 1–3).
Var. 2, *pennata*, var. nov. Zoœcia united in pretty wing-like groups of usually five tubes of considerable length, equalling the diameter of the branch (Pl. **34**. figs. 4, 5).
Var. 3, *superba*, J. Jullien. Branches very slender; zoœcia very long, exceeding in length the diameter of the branch, rarely in groups of more than three, often of only two, the outermost the longest (Pl. **34**. figs. 6, 7).

This is a very variable species, to which I feel confident that the foregoing forms should be referred, and I am also disposed to believe that the two species of J. Jullien, *Tervia solida* and *T. discreta*, are also only conditions of *F. irregularis*.

Dredged in 50–70 fathoms off Madeira (*A. M. N.*); Porto Santo to the south of Cima in 90 fathoms (*De Noronha*).

HORNERA PECTINATA, *Busk*. B., J.

1861. *Hornera pectinata*, Busk, Quart. Jour. Micr. Sci. vol. ix. p. 79, pl. 33. figs. 4–6.
1897. *Hornera pectinata*, Johnson, Ann. & Mag. Nat. Hist. ser. 6, vol. xx. p. 61.

I saw several specimens in the museum at Funchal, and Padre Schmitz was so kind as to give me one of them; but it was not until after an examination of the type specimen in the British Museum that I was satisfied as to the correctness of my determination. The fact is that the mouths of the zoœcia are not strongly pectinated as in Busk's figure, and indeed in the type specimen itself the indications of such irregular margins are only slight.

ENTALOPHORA PROBOSCIDEA (*H. M.-Edwards*). (Pl. **35**. figs. 1–3.)

1838. *Pustulipora proboscidea*, H. M.-Edwards, "Mém. sur les Crisies, &c.," Ann. des Sci. Nat. ser. 2, vol. ix. p. 27, pl. 12. fig. 2.

Common and very fine. A specimen is figured for comparison with the following species. Senhor de Noronha has also sent it to me from Porto Santo.

ENTALOPHORA ELEGANS, nom. nov. (Pl. **35**. figs. 4, 5.)

1906. *Entalophora subverticillata*, Calvet, Expéd. Sci. 'Travailleur' et 'Talisman,' Bryozoaires, p. 175, pl. 30. figs. 5, 6.

Distinguished from the preceding by its more spreading habit of growth and its very short zoœcial tubes, which are less than a quarter of the diameter of the branch in length. This gives the species, when seen by the naked eye, an entirely different aspect to that of *E. proboscidea*. Calvet's enlarged figure agrees fairly with my specimens, but that of the natural size indicates a larger and stouter growth than I have seen. Calvet's name cannot be used, as Busk's *Pustulopora subverticillata* of the Crag is an *Entalophora*.

A few specimens only obtained.

ENTALOPHORA DEFLEXA (*R. Q. Couch*). (Pl. **34**. figs. 8–13.)

1844. *Tubulipora deflexa*, Couch, Cornish Fauna: III. The Zoophytes, p. 107, pl. 19. fig. 4.

1859. *Pustulipora clavata*, Busk, Crag Polyzoa, p. 107, pl. 17. fig. 1.

1880. *Entalophora clavata*, Hincks, Brit. Marine Polyz. p. 456, pl. 65. figs. 5–8.

The Madeiran specimens from deep water show very great variation; figures of three specimens are given. *Pustulipora deflexa* of Hincks may or may not be this species.

FRONDIPORA VERRUCOSA (*Lamouroux*). J.

1897. *Frondipora maderensis*, J. Y. Johnson, "Cyclostomous Bryozoa found at Madeira," Ann. & Mag. Nat. Hist. ser. 6, vol. xx. p. 64.

An examination of Johnson's specimens in the Funchal Museum shows them to be the well-known Mediterranean species. I also dredged several pieces.

LICHENOPORA RADIATA (*Audouin*). J.

1897. *Diastopora catillus*, J. Y. Johnson, l. c. p. 61.

Johnson's types belong to this species, which is common off Madeira.

LICHENOPORA HISPIDA (*Fleming*). J.

1897. *Lichenopora spinata*, J. Y. Johnson, Ann. & Mag. Nat. Hist. ser. 6, vol. xx. p. 62.

The type in the Johnsonian collection appeared to me to be a very fine condition of *L. hispida* such as is sometimes developed in very sheltered situations (compare Hincks, pl. lxviii. fig. 2); the zoœcia terminating in spines, and their basal portion often angulated, that is furnished with a longitudinal rib. The species is subject to very great variation. The zoœcia are usually short, but sometimes very long when in an entirely protected place.

Lichenopora irregularis (*Johnson*). J.

1879. *Radiopora pustulosa*, Waters, "Bryozoa Bay of Naples," Ann. & Mag. Nat. Hist. ser. 5, vol. iii. p. 277, pl. 24. fig. 15.
1897. *Radiopora irregularis*, J. Y. Johnson, Ann. & Mag. Nat. Hist. ser. 5, vol. xx. p. 63.

Mr. Johnson's *irregularis* is undoubtedly the species well figured by Waters and referred by him to *Radiopora pustulosa*, d'Orbigny (Paléont. Fran., Crétacé, p. 994, pl. dcxlix. figs. 1–5), but I have thought best to use Johnson's name rather than that of the Chalk fossil, which bears a general resemblance to it. It is quite distinct from the British *Lichenopora hispida*, var. *meandrina*, Peach.

Diastopora pulchella, *J. Y. Johnson*. J.

1897. *Diastopora pulchella*, Johnson, Ann. & Mag. Nat. Hist. ser. 6, vol. xx. p. 61.

I know nothing of this species.

Suborder II. **CTENOSTOMATA.**

Alcyonidium effusum, n. sp. (Pl. **35**. figs. 7–9.)

Encrusting foreign substances completely with the coating zoarium. The zoarium is thickly beset with zoœcia. These zoœcia consist of a peduncle about three times as high as broad, and a crown of 18–20 slender tentacles. This species differs from all the others of the genus known to me in the very slow or the unwilling contractility of the tentacles. The two specimens found were picked out of the sieve and dropped into a bottle of spirit; and they both still have the mass of their zoœcia in a state of fullest expansion, hence the origin of the specific name I employ, *effusum*. I am not sure what the object is which they clothe, but I think it is a portion of *Antipathes*. I figure one of these of the natural size; the second is almost exactly like it except that attached to the *Antipathes* (?) is a young shell of *Ostrea cochlear*, and this also is entirely clothed with the Alcyonidium.

Dredged in deep water.

Lobiancopora hyalina, *Pergens*.

1888. *Lobiancopora hyalina*, Pergens, "Deux nouveaux types des Bryozoaires Cténostomes," Ann. Soc. Roy. Malac. de Belgique, vol. xxiii. pl. 14. figs. 4–7 (separate copy).
1906. *Lobiancopora hyalina*, Calvet, Expéd. Sci. 'Travailleur' et 'Talisman,' Bryozoaires, p. 372.

Dredged by the 'Travailleur' at Madeira in 400 metres, numerous colonies.

Suborder III. CHEILOSTOMATA.

ÆTEA ANGUINA (*Linné*).

Common on weed.

ÆTEA SICA (*Couch*). H.

This is *Ætea recta*, Hincks. Not uncommon on shells.

ÆTEA TRUNCATA, *Landsborough*. B.

Recorded by Busk.

PASITHEA EBURNEA, *Smitt*. W.

Recorded by Waters.

GEMELLARIA LORICATA (*Linné*).

A very small fragment dredged. This requires confirmation, since the fragment was so small, that it is *possible* that it might have been clinging in a crevice of the sieves and have been derived from a more northern habitat.

SCRUPOCELLARIA REPTANS (*Linné*).

A small fragment between tide-marks, Funchal.

Var. BERTHOLLETII (*Audouin*). (Pl. **36**. figs. 1, 2.)

1826. *Acamarchis Bertholletii*, Savigny's Egypte, pl. 11. fig. 3.
1867. *Scrupocellaria capreolus*, Heller, Bryozoër Adriat. Meeres, p. 11, pl. 1. fig. 1.

Small specimens taken off Funchal. One specimen, which agrees in all other respects, is totally devoid of scuta.

SCRUPOCELLARIA SCRUPOSA (*Linné*).

Dredged in 15–40 fathoms.

SCRUPOCELLARIA INCURVATA, *Waters*.

1897. *Scrupocellaria incurvata*, Waters, "Notes on Bryozoa from Rapallo," Linn. Soc. Journ., Zool. vol. xxxi. p. 9, pl. 1. figs. 16, 17.
1903. *Scrupocellaria aquitanica*, Jullien & Calvet, Résultats Camp. sci. Prince de Monaco, Bryozoaires provenant des campagnes de l' 'Hirondelle,' p. 35, pl. 3. figs. 2 *a*, 2 *b*.

The remarkable large arcuate vibracular cells of this *Scrupocellaria* are peculiarly distinctive. Several specimens were dredged in 50–70 fathoms at Madeira. The types of Mr. Waters were from Naples, and the examples procured by the Prince de Monaco were from 134 metres in the Bay of Biscay.

SCRUPOCELLARIA DELILII (*Audouin*). B., W.

1826. *Crisia Delilii,* Audouin, Savigny's Egypte, pl. 3. fig. 3.
1859. *Scrupocellaria Delilii,* Busk, Quart. Journ. Micr. Sci. vol. vii. p. 65, pl. 22. figs. 1, 2.

Fine specimens from the Telegraphic Cable (*De Noronha*).

SCRUPOCELLARIA MACANDREI, *Busk.* B.

1852. *Scrupocellaria Macandrei,* Busk, Cat. Marine Polyzoa Brit. Mus. p. 25, pl. 24. figs. 1–3.
1860. *Scrupocellaria Macandrei,* Busk, "Cat. Polyzoa Madeira," Quart. Journ. Micr. Sci. vol. viii. p. 281.
1884. *Scrupocellaria Macandrei,* Busk, 'Challenger' Polyzoa, p. 23, pl. 11. fig. 4.

Off Funchal (*A. M. N.*), Salvages (*De Noronha*). As first described and figured by Busk this species was said to be distinguished from *S. scrupea* by the fact that it had only a single minute spine at the outer angle of the orifice: but in the 'Challenger' Report it assumes an entirely different aspect. As compared with the *S. scrupea* of our southern coasts, it is more slender in all its parts and of less porcellanous appearance. The oral opening is shorter and more round in outline, with the hinder margin flattened, and sometimes finely granulated; the marginal spines are commonly six, four on the outer and two on the inner margin; the scutum is nearly round, with its pedicel attached to the middle of its side; the lateral avicularia are of somewhat larger size than in *S. scrupea*; and median small avicularia often occur situated by the base of the scutum. I have not seen the oœcia.

In *S. scrupea* the spines are usually two or three on the outer, and one or two on the inner margin of the oral aperture. The scutum is distinctly reniform, and the pedicel is attached in front of the middle. My observations agree with those of Hincks, who states that he has not seen frontal avicularia when no oœcia are developed, but that when oœcia are present there is usually a small avicularium seen immediately above them.

SCRUPOCELLARIA MADERENSIS, *Busk.* B.

1860. *Scrupocellaria maderensis,* Busk, Quart. Journ. Micr. Sci. vol. viii. p. 280, and vol. ix. 1861, p. 77, pl. 32. fig. 1.

I have not seen any specimen exactly corresponding with Busk's figure; but with the amended characters of *S. Macandrei* it would certainly seem that *S. maderensis* can scarcely be kept apart from it.

SCRUPOCELLARIA HIRSUTA, *Jullien & Calvet.*

1903. *Scrupocellaria hirsuta,* Jullien & Calvet, Résult. Camp. sci. Prince de Monaco, fasc. xxiii. Bryozoaires, p. 35, pl. 3. fig. 3.

No scutum; mouth spines four or five, and on young cells at the extremity of a branch even six; frontal avicularia of large size; lateral avicularia very small, only visible when the zoœcia are viewed from the side; vibracular cells oblong, the grasping-organ with the extremity digitate. Oœcia covered with scattered pustules.

One small specimen found at Madeira creeping on what appeared to be a fragment of the root of a seaweed, where it was accompanied by *Ætea anguina*. Jullien and Calvet did not notice the very small lateral avicularia.

CABEREA BORYI (*Audouin*). B.

Porto Santo and Telegraphic Cable, Madeira (*De Noronha*).

BUGULA NERITINA (*Linné*).

Off Funchal, especially near the coaling ship.

BUGULA AVICULARIA (*Linné*). B.

Funchal Bay (*De Noronha*).

BUGULA PLUMOSA (*Pallas*).

A small fragment, Porto Santo (*De Noronha*).

BUGULA DITRUPÆ, *Busk*. B., W.

1858. *Bugula flabellata*?, var. *biseriata* s. *ditrupæ*, Busk, Quart. Journ. Micr. Sci. vol. vi. p. 125.
1858. *Bugula ditrupæ*, id. ibid. p. 261, pl. 20. figs. 7, 8.
1886. *Bugula ditrupæ*, Hincks, "Polyzoa of the Adriatic," Ann. & Mag. Nat. Hist. ser. 5, vol. xvii. p. 260, pl. 9. figs. 3, 4.
1897. *Bugula ditrupæ*, Waters, "Polyzoa from Rapallo, &c.," Journ. Linn. Soc., Zool. vol. xxvi. p. 12, pl. 2. figs. 2, 3.

This small species is by no means rare in 40–70 fathoms a little to the east of Funchal. It would seem to be a true commensal. All the specimens I have seen were attached to the anterior end of *Ditrupæ*, as represented in Busk's figure. Hincks and Waters, however, do not make any allusion to this peculiar habitat, so probably the specimens examined by them were detached from their base.

BUGULA DENTATA (*Lamouroux*). (Pl. **36**. fig. 3.)

1852. *Bugula dentata*, Busk, Cat. Marine Polyzoa Brit. Mus. p. 46, pl. 59.

I am indebted to Senhor de Noronha for a very fine specimen of this species taken at Porto Santo, which measures 2 inches high and 3½ broad. I also saw a Madeiran specimen in the museum of the Seminario at Funchal, which was erroneously named. It is an interesting addition to the Madeiran fauna; its previously known range was Australia, New Zealand, Tasmania, and South Africa. The slaty colour of the zoarium is a very distinctive characteristic, which at once catches the eye.

BUGULA GRACILIS, *Busk*. B. (Pl. **36**. figs. 4–6.)

1858. *Bugula gracilis*, Busk, Quart. Journ. Micr. Sci. vol. vi. p. 125, pl. 19. fig. 1.

A single and small specimen of this very delicate and slender species dredged off Funchal.

BEANIA HIRTISSIMA, *Heller*. W.

On weeds between tide-marks. Gorgulho, Madeira.

MOLLIA PATELLARIA (*Moll*). W.

1867. *Diachoris simplex*, Heller, Bry. Adriat. Meeres, p. 18, pl. 1. fig. 4.

Lamouroux (Hist. Poly. Coral. flex. 1816, p. 115) established the genus *Mollia*, with *Mollia patellaria*, Moll, as the type and only species given. The generic name has been much misapplied, but must by every right be used for this and such other forms as may be regarded as congeneric.

Senhor De Noronha sent me two large round masses of Nullipore from the Salvages, and *M. patellaria* was coating the rough surface in great profusion.

HINCKSINA FLUSTROIDES (*Hincks*). W.

1880. *Membranipora flustroides*, Hincks, Brit. Marine Polyz. p. 151, pl. 19. fig. 1.
1880. *Membranipora nodulifera*, Hincks, Ann. & Mag. Nat. Hist. ser. 5, vol. vi. p. 71, pl. 9. fig. 2.
1903. *Hincksina flustroides*, Norman, Ann. & Mag. Nat. Hist. ser. 7, vol. xi. p. 385.

I found specimens of this species undetermined in the Johnsonian collection, and also a specimen exactly as *M. nodulifera*, Hincks, which I agree with Waters in regarding as a worn specimen of this species.

HINCKSINA MADERENSIS (*Waters*). W.

1898. *Membranipora maderensis*, Waters, "Notes on the Membraniporidæ," Linn. Soc. Journ., Zool. vol. xxvi. p. 677, pl. 49. figs. 2–6.

In 40–70 fathoms on shells (e. g. *Avicula*), and on the coral *Madracis asperula* but rare.

MEMBRANIPORA MEMBRANACEA (*Lamk.*).

I found a specimen in the Johnsonian collection.

MEMBRANIPORA TUBERCULATA (*Bosc*). B.

1802. *Flustra tuberculata*, Bosc, Hist. Nat. des Vers, vol. iii. p. 118.
1839. *Flustra tehuelcha*, D'Orbigny, Voy. dans l'Amér. Mérid. vol. v. pt. 4, p. 17, pl. 8. figs. 10–14.

1858. *Membranipora tuberculata,* Busk, Quart. Journ. Micr. Sci. vol. vi. p. 126, pl. 18. fig. 4.

1898. *Membranipora tehuelcha,* Waters, "On Membraniporidæ," Linn. Soc. Journ., Zool. vol. xxvi. p. 674, pl. 48. figs. 6–8.

Specimens of this species are in the Johnsonian collection, and others collected at Porto Santo have been sent to me by Senhor De Noronha. In all cases they are encrusting the Gulf-Weed (*Sargassum*), especially the round air-bladders, and they would seem to have drifted to the locality where they occurred.

Mr. Waters would reject Bosc's name on account of insufficient description and a reference to *Flustra dentata*, Müller (Zool. Dan.). With regard to the reference, when so little was known in 1802, it is not surprising that it should be thought that any species having spines on the margin might be a synonym. Bosc's description is: "*Flustra tuberculata.* Incrustée, les cellules ovales avec chacune trois dents et un bourrelet à leur ouverture"; but it appears to me that the habitat given settles the matter, for he states that it is found "en immense quantité sur les fucus nageans dans l'Atlantique," for this species is essentially the Polyzoon of the Gulf Weed.

MEMBRANIPORA TRICHOPHORA, *Busk*. B.

1858. *Membranipora trichophora,* Busk, Quart. Journ. Micr. Sci. vol. vi. p. 126, pl. 18. fig. 2.

The type specimen of this curious species is in the British Museum. Not knowing where to place it, it is here left in *Membranipora*. There are in reality six spines on the anterior part of the zoœcium, but of the central pair I was only able to see the stumps, while the two lower pair, when present, are of extraordinary length as figured by Busk. The oral bar, as figured by Busk, does not exist, so that the front is truly Membraniporiform.

CALLOPORA LINEATA (*Linné*). B.

Busk gives this species, without any observation, as Madeiran. I have not seen it. If not again met with, it may be presumed that *Hincksina maderensis* was the species found.

CALLOPORA DUMERILEI (*Audouin*). W.

1905. *Membranipora Guernei,* J. Calvet, Résult. Camp. sci. Prince de Monaco, xxiii. Bryozoaires, p. 4, pl. 5. fig. 3.

I found one small specimen in 1897.

CRASSIMARGINATELLA CRASSIMARGINATA (*Hincks*). B., H., W.

1860. *Membranipora Lacroixii* (?), Busk, Quart. Journ. Micr. Sci. vol. viii. p. 282.

1861. *Membranipora irregularis,* Busk, ibid. vol. ix. p. 77, pl. 33. fig. 3 (nec d'Orbigny).

1880. *Membranipora crassimarginata*, Hincks, Ann. & Mag. Nat. Hist. ser. 5, vol. vi. p. 71, pl. 9. fig. 1.
1900. *Crassimarginatella crassimarginata*, Canu, "Revis. Bryoz. de Crétacé figurés par d'Orbigny," Bull. Soc. Géol. France, p. 369.
1903. *Oochilina crassimarginata*, Norman, Ann. & Mag. Nat. Hist. ser. 7, vol. xi. p. 595.

On stones between tide-marks, and dredged on shell, Madeira (*A. M. N.*); Salvages, on nullipore, and also at Porto Santo (*De Noronha*).

CRASSIMARGINATELLA TENUIROSTRIS (*Hincks*). H.

1879. *Membranipora Flemingii*, Waters, Ann. & Mag. Nat. Hist. ser. 3, vol. iii. p. 122, pl. 13. fig. 2.
1880. *Membranipora tenuirostris*, Hincks, Ann. & Mag. Nat. Hist. ser. 5 vol. vi. p. 70, pl. 9. fig. 3.

On stones between tide-marks at Gorgulho, and also dredged.

ANTROPORA GRANULIFERA (*Hincks*). H.

1880. *Membranipora granulifera*, Hincks, Ann. & Mag. Nat. Hist. ser. 5, vol. vi. p. 72, pl. 9. fig. 4.
1903. *Antropora granulifera*, Norman, Ann. & Mag. Nat. Hist. ser. 7, vol. xii. p. 87.

Not uncommon on shells, stones, and *Madracis asperula* in 50–70 fathoms. The examples on the coral referred to are commonly associated with *Onychocella angulosa*, to which species, when seen with the naked eye, it bears a remarkable resemblance (*A. M. N.*). Porto Santo in 60 fathoms (*De Noronha*).

ROSSELIANA ROSSELII (*Audouin*). B.

1880. *Membranipora Rosselii*, Hincks, Brit. Marine Polyz. p. 166, pl. 22. fig. 4.
1888. *Rosseliana Rosselii*, Jullien, Mission Sci. du Cap Horn, Bryozoaires, p. 78.

Some small typical fragments occurred, and also a very large example on stone, differing from all other specimens I have seen in having the openings occupying a less portion of the zoœcium than usual, or in other words the covered portion longer than usual.

MEMBRANIPORELLA NITIDA (*Johnston*). H., W.

This species has been recorded both by Hincks and Waters, but I have not myself seen any typical Madeiran *nitida*, but only the form described below.

Var. INTERMEDIA. (Pl. 36. fig. 7.)

In all respects except the front wall this form agrees with *M. nitida*; but whereas in all the varieties of that species seen by me from northern localities the radiating ribs are separated during their length and are only united on the median line, there joining the extremities of those from the opposite side, and thus constituting the longitudinal central rib; in this var. *intermedia* the radiating ribs coalesce with each other by crossbars, so as to form roundish openings or "lateral lacunes," * as I have termed them. In fact this Madeiran form in its structure is in all respects a true *Cribrilina*.

MEMBRANIPORELLA SCELETOS (*Busk*). B., H., W. (Pl. **36**. fig. 8.)

1858. *Membranipora sceletos*, Busk, Quart. Journ. Micr. Sci. vol. vi. p. 262, pl. 60. fig. 3.
1880. *Membranipora sceletos*, Hincks, Ann. & Mag. Nat. Hist. ser. 5, vol. vi. p. 73.
1898. *Membranipora sceletos*, Waters, "On Membraniporidæ," Linn. Soc. Journ., Zool. vol. xxvi. p. 677, pl. 49. figs. 2–6.
1903. *Membraniporella neptuni*, J. Calvet, Résult. Camp. sci. Prince de Monaco, xxiii. Bryozoaires, p. 38, pl. 5. fig. 2.

The form of the spines arching over the zoœcium in this species, instead of being horizontally compressed and widened as is the case in *M. nitida*, are vertically, that is laterally, compressed; so that, to use Mr. Waters's words, "under the microscope we are looking down upon the narrow edge of the flattened spines." These spines usually remain isolated from each other; even although they may cross in the centre. But this is not always the case. In several examples which have come under my observation, they are coalesced (see right-hand zoœcium in figure here given), though in consequence of the ribs meeting each other at different angles, they may still be separately distinguished, the union not being so absolute as in *M. nitida*. Yet it would seem that we must regard *M. sceletos* as a member of the genus to which I here remove it.

CUPULARIA GUINEENSIS, *Busk*. B. (Pl. **37**. figs. 2–6.)

1854. *Cupularia guineensis*, Busk, Cat. Marine Polyzoa, p. 98, pl. 114.
1859. *Cupularia canariensis*, Busk, Quart. Journ. Micr. Sci. vol. vii. p. 66, pl. 23. figs. 6–9.
1859. *Cupularia canariensis*, Busk, Crag Polyzoa, p. 87, pl. 13. fig. 2.
1873. *Membranipora canariensis*, Smitt, Floridan Bryozoa, p. 10, pl. 2. figs. 69–71.
1884. *Cupularia guineensis*, Busk, 'Challenger' Polyzoa, p. 206, pl. 14. fig. 6.

Waters unites also with this species *C. stellata*, Busk (Brit. Mus. Cat.) and *C. monotrema*, Busk ('Challenger').

Zoarium only slightly raised, saucer-shaped; zoœcia narrowly lozenge-shaped, calcareous margin simple, without any inward projecting developments. Lower side divided into more or less regular quadrate portions, each of which would seem to represent a zoœcium; these divisions contain pores, usually four in number, but occasionally only two or three. The divisions, though normally four-sided, are occasionally five or six-sided, more especially towards the centre, as figured by Busk in *C. guineensis* (Cat. Polyzoa).

Common in 50–70 fathoms.

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* *Vide* Norman on the structure of Cribrilinidæ in "Notes on the Natural History of East Finmark," Ann. & Mag. Nat. Hist. ser. 7, vol. xii. 1903, pp. 90–99.

CUPULARIA LOWEI, *Gray*. B. (Pl. **37**. figs. 7–12.)

1854. *Cupularia Lowei*, Busk, Cat. Marine Polyzoa, p. 99, pl. 116.
1869. *Cupularia umbellata*, Manzoni, "Bryoz. Plioc. Ital.," Sitz. d. k. Akad. Wissensch. vol. lix. p. 10, pl. 2. fig. 16.

This is most conspicuously distinct from its Madeiran allies. Unlike in growth to them, it does not consist of a round zoarium taking its origin from a central point, and developing equally round that centre so as to form a circular organism ; but in *Lowei*, even when the zoarium is circular in form, it is only irregularly so and is made up of distinct radial segments, but more generally only a certain number of segments being developed, the zoarium is more or less fan-shaped. The under surface is quite white and porcellanous, with only faint lines usually apparent. Seen from above the zoœcia are broad in proportion to their length, the oral aperture is marked off by a *well-developed band to constitute the lower lip*, and the vibracular cells encroach on the following zoœcium. The appearance when dead is also very distinct, the lower lip being very characteristic.

Common in 50–70 fathoms off the coast near the Lazaretto, in company with the other species.

CUPULARIA JOHNSONI, *Busk*. B. (Pl. **38**. figs. 1–6.)

1859. *Cupularia Johnsoni*, Busk, Quart. Journ. Micr. Sci. vol. vii. p. 67, pl. 23. figs. 1–6.
1869. *Cupularia Reussiana*, Manzoni, "Bryoz. Plioc. Ital.," Sitz. d. k. Akad. d. Wissensch. vol. lix. p. 11, pl. 2. fig. 19.
1873. *Cupularia doma*, Smitt, South Floridan Bryoz. ii. p. 15, pl. 3. figs. 81–84.

Zoarium conical, in the form of a little dome. The zoœcium is somewhat narrowly lozenge-shaped, and has an important specific character in the fact that from the sides in the position of the lower lip calcareous processes are developed inwards so as to present an interrupted bar. The underside is profusely studded with small tubercles (fig. 3). In a variety which is smaller and less raised than the type (fig. 5) the radiating ridges are greatly developed, and bear two rows of tubercles regularly placed and of much larger size than those of the type (fig. 6).

In 40–70 fathoms in company with the two preceding species, and on ground which is very rich in Polyzoa and Mollusca.

CUPULARIA OWENI, *Gray*. B.

1828. *Cupularia Oweni*, Gray, Spicilegia Zoologica, pt. i. p. 8, pl. 3. fig. 15.
1854. *Cupularia Oweni*, Busk, Cat. Marine Polyzoa, p. 99, pl. 115.

Busk records this species from Madeira. It is unknown to me as Madeiran.

Cribrilina radiata (*Moll*). B., H., W.

1803. *Eschara radiata*, Moll, ("Die Seerinde") Eschara, p. 63, pl. 4. fig. 17.
1826. *Flustra Pouilletii*, Audouin, Savigny's Egypte, pl. 9. fig. 12.
1858. *Lepralia radiata*, Busk, Quart. Journ. Micr. Sci. vol. vi. p. 263, pl. 20. figs. 4, 5.
1859. *Lepralia Pouilletii*, id. ibid. vol. vii. p. 66, pl. 22. fig. 6.
1864. *Lepralia scripta*, Reuss, "Fauna des deutschen Oberoligocäns," Sitz. k. Akad Wiss., Math.-naturwis. Cl. i. Bd. i. p. 641, pl. 15. fig. 3.
1869. *Lepralia scripta*, Manzoni, "Bryoz. foss. Ital.," Sitz. k. Akad. Wissensch. vol. lx. p. 4, pl. 1. figs. 1, 2.
1871. *Lepralia scripta*, Manzoni, "Suppl. alla fauna dei Bryozoi Mediterranei," Sitz. k. Akad. Wissensch. vol. lxiii. p. 5, pl. 1. fig. 6.
1871. *Lepralia scripta*, Manzoni, Brioz. Plioc. ant. di Castrocaro, p. 18, pl. 2. figs. 25, 25 *a*
1873. *Lepralia scripta*, Reuss, Foss. Bryoz. Österreich-Ungarisch. Miocäns, i. p. 165, pl. 1. fig. 7, pl. 6. fig. 1.
1880. *Cribrilina radiata*, Hincks, Brit. Marine Polyz. p. 185 (partim). Var. *tenuirostris*, pl. 25. figs. 3, 6.

The above references, which might be greatly multiplied, are selected to show the characters of the species as distinguished from *C. innominata*, Couch. The latter is a common species in the British Seas, which I have found at Guernsey and round the western coasts up to Shetland, and it is most abundant in the West of Ireland. But the true *C. radiata*, Moll, is rare on our coasts, and I have only seen two specimens from Guernsey and one from Birturbuy Bay, Ireland. The ribs in *C. radiata* are usually 16–18 and little elevated, so that the lacunes between them are wide open, and commonly more conspicuous to the eye than the ribs themselves; large, elongated sharply pointed avicularia are scattered among the zoœcia. The suboral pore, commonly present in both *radiata* and *innominata*, is subject to great variation; sometimes a boss rises immediately behind the pore and completely conceals it; sometimes two, three, or more smaller openings take the place of the pore, and occasionally it is entirely absent. *C. radiata* is common off Madeira at various depths, on shell, coral, &c.

Var. foliata, var. nov.

I am indebted to Padre Schmitz for portions of a remarkable variety which grows erect from a base attached to a deep-sea Alcyonarian, and consists of foliaceous expansions with zoœcia on both faces.

Cribrilina innominata (*Couch*). W.

1847. *Lepralia innominata*, Johnston, Brit. Zooph. p. 31, pl. 55. fig. 12.
1871. *Lepralia innominata*, Manzoni, "Suppl. fauna Bryoz. Mediterr.," Sitz. k. Akad. Wissensch. vol. lxiii. p. 4, pl. 1. fig. 5.
1873. *Cribrilina innominata*, Smitt, Floridan Bryoz. p. 23, pl. 5. fig. 110 (but not I think fig. 109).
1880. *Cribrilina radiata*, Hincks, Brit. Marine Polyz. p. 185 (partim), pl. 25. figs. 1, 2, 4, 5, 7.

1899. *Cribrilina setosa,* Waters, "Bryozoa from Madeira," Journ. Roy. Micr. Soc. p. 8.
1902. *Cribrilina radiata,* Harmer, Quart. Jour. Micr. Sci. n. s. vol. xlvi. p. 326, pl. 15. fig. 7.
1903. *Cribrilina innominata,* Norman, Ann. & Mag. Nat. Hist. ser. 7, vol. xii. p. 96, pl. 9. fig. 3.

In this species the ribs are usually 10–12 in number, but sometimes fewer; they are almost always more prominent than in the last species, and are frequently greatly raised and often crowned with spines. This elevation of the ribs much obscures the sight of the intercostal lacunes. The large interzoœcial oblique and very acute avicularia of *C. radiata* are absent, but rarely here and there avicularia are found of the same general characters as those just mentioned but not so produced and acute. On each side just below the oral opening is a slender forward projecting slender papilla or seta which is very easily abraded. The suboral pore or its substitute presents just the same variations as in the last species. The foregoing observations apply to the forms of *C. innominata* found on the British coasts. At Madeira I found this species between tide-marks at Gorgulho with the ribs very slightly elevated, and consequently the interstitial openings (lacunes) are conspicuous; suborally several minute pores are present; no interzoœcial avicularia were observed.

CRIBRILINA PUNCTATA (*Hassall*). H.

Recorded by Hincks.

CRIBRILINA BALZACI (*Audouin*). W.

1826. *Flustra Balzaci,* Audouin, Savigny's Egypte, pl. 9. fig. 8.
1879. *Lepralia cribrosa,* Waters (*nec* Heller), "Bryozoa Bay of Naples," Ann. & Mag. Nat. Hist. ser. 5, vol. iii. p. 36, pl. 9. fig. 4.
1899. *Cribrilina Balzaci,* Waters, "Bryozoa from Madeira," Jour. Roy. Micros. Soc. p. 9, pl. 3. figs. 31, 32.
1903. *Cribrilina Balzaci,* Norman, "Nat. Hist. East Finmark," Ann. & Mag. Nat. Hist. ser. 7, vol. xii. p. 98, pl. 9. fig. 6.

The mouth-spines are four; the lip is strongly pouting, as in *C. punctata.* There are usually no lateral avicularia, but sometimes they are present on one or both sides. The oœcium bears concentric lines, and is sparingly punctured; there is sometimes an avicularium above it; but whole zoaria may be totally devoid of this apically placed organ.

Common on stones between tide-marks; less frequently on shell.

CELLULARIA FISTULOSA (*Linné*).

Two or three small fragments in deep water, apparently drifted there.

In Ann. & Mag. Nat. Hist. ser. 7, vol. xi. 1903, p. 577, I have shown the necessity of restoring the original name of that most admirable naturalist, Pallas, *Cellularia*, for the unwarrantably introduced synonym *Cellaria*, Lamouroux. Mr. Waters has recently dissented (Voyage 'Belgica,' Bryozoa, 1894, p. 34), writing: "As *Tubocellaria opuntioides* was the first mentioned, this would be the type; and the only genus to which according to the law of priority the name could be applied is *Tubocellaria*," but the laws of nomenclature state differently (Rules Zool. Nomenc. Brit. Assoc. 1873, § 3 and 4). No type was intimated by Pallas, and Lamouroux was not compelled to take the first species named by Pallas, and he chose *C. salicornaria* as his first-named species, and which has ever since been regarded as the type, but his whim led him to substitute the spelling *Cellaria* for *Cellularia* of Pallas: there was no justification for this, and the former must lapse in the latter older name.

CELLULARIA JOHNSONI (*Busk*). B.

Dredged occasionally. It never grows in clusters in the way in which its allies *C. fistulosa* and *C. sinuosa* are found.

CELLULARIA NODOSA, n. sp. (Pl. **42**. figs. 4, 5.)

The zoarium in this species is contracted at intervals, and the zoœcia of the more swollen and of the more contracted parts are quite different. Those of the former are ovate, arranged in quincunx, those in the same row touching, or, as shown in figure, nearly touching each other, margins well raised; lower margin of oral opening very slightly arched, and not much above the centre of the zoœcium; the pore of the oœcium is transversely elongated. In the constrictions of the zoarium the zoœcia are longer and narrowed, those in the same line very distantly separated from each other, so that in this part there is a near resemblance to *C. Johnsoni*.

Growing on *Sertullarellæ* which were attached to the telegraphic cable when taken up. Many specimens were found, but none larger than that figured (*De Noronha*).

MICROPORA CORIACEA (*Esper*). W.

J. Jullien (Miss. Sci. Cap Horn, 1888, p. 78) instituted a genus *Peneclausa*, with this species as the type, forgetful that this same species was the type of *Micropora*, Gray.

Common in Labra Bay and occasionally elsewhere at Madeira (*A. M. N.*). Salvages, common on *Ostrea cochlear* (De Noronha).

ONYCHOCELLA ANGULOSA (*Reuss*). B., W. (Pl. **37**. fig. 1.)

1848. *Cellepora angulosa*, Reuss, Foss. Polyp. Wiener Tertiärbeckens, p. 75, pl. 11. fig. 10.

1858. *Membranipora antiqua*, Busk, Quart. Journ. Micr. Sci. vol. vi. p. 262, pl. 20. figs. 1, 2.

1870. *Membranipora angulosa,* Manzoni, "Bryoz. foss. Ital.," Sitz. k. Akad. Wissensch. p. 9, pl. 2. fig. 10.
1875. *Membranipora angulosa,* Reuss, Bryoz. österreich. Miocäns, pl. 10. fig. 11.
1875. *Membranipora angulosa,* Manzoni, Brioz. Plioc. antico di Castrocaro, p. 8, pl. 1. fig. 11.
1879. *Membranipora angulosa,* Waters, Ann. & Mag. Nat. Hist. ser. 5, vol. iii. p. 122, pl. 13. fig. 3.
1880. *Membranipora antiqua,* Hincks, Ann. & Mag. Nat. Hist. ser. 5, vol. vi. p. 88, pl. 11. fig. 7.
1881. *Onychocella Marioni* and *O. antiqua,* J. Jullien, "Nouvelle Div. des Bryoz.," Bull. Soc. Zool. France, pp. 7, 9, and woodcuts.

Very abundant in 50–70 fathoms off coast between the Lazaretto and Cabo do Garajäo on shells, Ditrupæ, and coral (*A. M. N.*); Porto Santo, 60 fathoms (*De Noronha*). Jullien, Waters, and Hincks have figured the remarkable large avicularia of this genus.

SETOSELLA VULNERATA (*Busk*). B.

In 70 fathoms, the same ground as the last, chiefly on Ditrupæ and shell; whereas in the Shetland Sea I invariably found it on very small pebbles.

CALPENSIA IMPRESSA (*Moll*).

1888. *Calpensia calpensis,* Jullien, Miss. Sci. Cap Horn, Bryoz. p. 78.
1907. *Micropora impressa,* Norman, Ann. & Mag. Nat. Hist. ser. 7, vol. xx. p. 207, pl. 9. figs. 1–3, and synonyms there given.

A single specimen dredged in 1897.

ONCHOPORELLA LIGULATA (*Busk*). B.

1860. *Carbasea ligulata,* Busk, Quart. Journ. Micr. Sci. vol. viii. p. 282, pl. 31. fig. 2.

I have not seen this species, but Dr. Levinsen informs me that he would place it in the genus *Onchoporella,* Busk (' Challenger ').

The Genera CATENICELLA, CATENARIA, *and* ALYSIDIUM.

1. Savigny never used the generic name *Catenaria.* Under Savigny's plate (Savigny's Egypte, pl. 13) we find the French word "Catenaires," but in the description of the plate by Audouin the two species are assigned to the genus *Eucratea.*
2. Blainville, Man. d'Actinologie, 1834, p. 462, establishes the genus *Catenicella* in this curious fashion: "Nous avons trouvé ce genre, indiqué par Savigny dans les planches du grande ouvrage sur l'Egypte sous le nom de *Catenaria,* que nous avons modifié en celui de *Catenicella.*" Here is given a name *Catenaria* which *does not really exist.* There is a reference to Savigny's figures, parts of which are reproduced, but he is unacquainted with the description of the

plates and names the species *Catenicella Savignii*, instead of *C. Contei*, which it should have been.

3. D'Orbigny at last establishes a genus *Catenaria* (Paléont. Fran., Crétacé Bryoz. 1850, p. 42) and his first species is *Eucratea Lafontii*, Aud.
4. Busk (Cat. Polyz. Brit. Mus. 1852, p. 13) established a genus *Alysidium*, in which he placed two species, *A. parasiticum* and *A. Lafontii.* If the genus is retained it will be with *A. parasiticum* as its type, and *A. Lafontii* omitted from it.
5. Busk, 'Challenger' Report, 1884, p. 14, gives "*Catenaria*, Savigny. . . . The typical species I have assumed for this genus is the *Eucratea Lafontii* of Audouin." Read "*Catenaria*, d'Orbigny," and the type is right, but other species placed by Busk under the name in this report can scarcely be considered congeneric with the type.

CATENICELLA CONTEI (*Audouin*). B. (Pl. **42.** figs. 1–3.)

1828. *Eucratea Contei*, Audouin, Savigny's Egypte, pl. 13. fig. 1.
1834. *Catenicella Savignyii*, Blainville, Man. d'Actin. p. 462, pl. 78. fig. 5.
1860. *Catenicella elegans*, Busk, Quart. Journ. Micr. Sci. vol. viii. p. 280 (nec *Cat. elegans*, Busk, Brit. Mus. Cat. Polyz. p. 10, pl. 9).

I figure two primary zoœcia which I found growing on a *Lepralian* at Madeira, and also a portion of a specimen from the Johnsonian Collection at Madeira labelled *C. elegans;* moreover, Busk's own specimen from Madeira, now in the British Museum, is similarly named. It is obvious that a mistake was made, and that the species is really *C. Contei*, Audouin, the type of the genus ; but it is curious that the artist did not figure the vittæ which are present, and, moreover, are characteristic of all allied forms.

CATENARIA LAFONTII (*Audouin*). B., W.

1828. *Eucratea Lafontii*, Audouin, Savigny's Egypte, pl. 13. fig. 2.
1850. *Catenaria Lafontii*, d'Orbigny, Paléont. Fran., Crétacé, p. 43.
1852. *Alysidium Lafontii*, Busk, Cat. Marine Polyz. Brit. Mus. p. 14, pl. 14. figs. 1–4.
1884. *Catenaria Lafontii*, Busk, Report 'Challenger,' Polyz. p. 14.

In records from Madeira Busk called it *Eucratea Lafontii*, and Waters *Alysidium Lafontii*. I found small pieces attached to *Lagenipora Costazei*, and the Funchal Museum was well supplied with the species, which was found growing on a fisherman's basket.

Genus HALYSISIS *, n. g.

Zoarium chain-like, each zoœcium forming a separate link, jointed to the one preceding at the back of the oral opening; zoœcia elongated, simple; oral aperture round or ovate; oœcia as yet unknown.

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* ἅλυσις a chain; many genera having been formed from this root has necessitated the form of the last syllable.

HALYSISIS DIAPHANA, *Busk*. B.

1860. *Scruparia diaphana*, Busk, Quart. Journ. Micr. Sci. vol. viii. p. 281, pl. 31. fig. 1.
1884. *Catenaria diaphana*, Busk, Report 'Challenger,' Polyzoa, p. 14, pl. 2. fig. 3.

Busk in his 'Challenger' Report corrects his previous statement as regards the shape of the oral opening; and he figures the raised lines which are on each side of the zoœcium and extend throughout its length. The appearance of the dead zoarium is striking from its almost black colour.

I dredged this mingled with *Crisia eburnea*; and in the Johnsonian Collection it was freely covering a valve of *Avicula tarentina*.

REPTADEONELLA VIOLACEA (*Johnston*).

1884. *Reptadeonella violacea*, Busk, Report 'Challenger,' Polyz. p. 180.

On coal dredged near the coaling ship at Funchal.

ADEONELLOPSIS COSCINOPHORA (*Reuss*). B.

1848. *Eschara coscinophora*, Reuss, Foss. Polyp. Wiener Tertiärbeckens, p. 67, pl. 8. fig. 20.
1858. *Lepralia distoma*, Busk, Quart. Journ. Micr. Sci. vol. vi. p. 127, pl. 18. fig. 1.
1859. *Eschara distoma*, id. ibid. vol. vii. p. 66, pl. 22. figs. 10–12.
1862. *Eschara coscinophora*, Stoliczka, "Oligocäne Bryoz. von Latdorf," Sitz. k. Akad. Wissensch. p. 89, pl. 2. fig. 11, pl. 3. figs. 1, 2.
1864. *Eschara coscinophora*, Reuss, "Fauna deutsch. Oberoligocäns," Sitz. k. Akad. Wissensch. vol. i. p. 649, pl. 12. figs. 1, 2.
1865. *Eschara coscinophora*, Reuss, Foram., Anthoz. u. Bryoz. deutschen Septarienthones, p. 186, pl. 11. figs. 1–4.
1877. *Eschara polystomella*, Manzoni, Brioz. foss. Miocene Austria e Ungheria, p. 14, pl. 8. fig. 25.
1884. *Adeonella distoma*, Busk, 'Challenger' Polyzoa, p. 187, woodcuts 56, 57.

It is true that Reuss's original figure could not be supposed by itself to represent the species as observed by Busk, yet illustrated subsequently as it has been by the figures of Stoliczka and Manzoni, the former of which have been acknowledged by Reuss to represent his species, I have no hesitation in regarding the species which I have dredged in about 70 fathoms at Madeira, and of which Senhor De Noronha has sent me a young specimen taken from the telegraphic cable off Funchal, as referable to the fossil form. At the suggestion of Dr. Levinsen I have placed the species in the genus *Adeonellopsis* of Macgillivray, who has found several allied forms in the Australian seas.

FENESTRULINA MALUSII (*Audouin*). H.

1888. *Fenestrulina Malusii*, J. Jullien, Miss. Sci. du Cap Horn, p. 37, pl. 15. figs. 1-8.

Recorded by Hincks.

MICROPORELLA MARSUPIATA (*Busk*). B. (Pl. **38**. fig. 7.)

1860. *Lepralia marsupiata*, Busk, Quart. Jour. Micr. Sci. vol. viii. p. 284, pl. 31. fig. 4.
1867. *Lepralia appendiculata*, Heller, Bryoz. Adriat. Meeres, p. 31, pl. 2. fig. 8.

Professor Heller kindly sent me cotypes of some of the species described by him soon after his work was published. Among them was *L. appendiculata*, which agrees in every particular with Busk's *L. marsupiata*. The species is a strongly characterised form, the stout oral spines *with their black bases*, and the *outermost pair forked* (but not trifid as represented by Heller); the long black vibracula, which directed upwards overtop the semiglobose imperforate oœcium, and the basal portion of which bears a complete bar; the rough surface of the zoœcium, and the pore set in a distinct cup, which is either complete below the oral lip, or incomplete, being united with the sides of the oral opening, are characters very different from any other species known to me. Busk's figure is very good. There are sometimes no vibracula, at others two to every cell.

The species is not rare off Madeira in 40–70 fathoms, usually in company with such species as *Onychocella angulosa* and *Lepralia peristomata*.

MICROPORELLA DECORATA (*Reuss*). H. (Pl. **39**. figs. 2, 3.)

1848. *Cellepora decorata*, Reuss, Foss. Polyp. Wiener Tertiärbeckens, p. 89, pl. 10. fig. 25.
1873. *Lepralia decorata*, Reuss, Foss. Bryoz. Österr.-Ungar. Miocäns, i. p. 154, pl. 5. fig. 2.
1875. *Lepralia decorata*, Manzoni, Brioz. Pliocene antico di Castrocaro, p. 15, pl. 2. figs. 18 *a–b*.
1880. *Microporella decorata*, Hincks, Ann. & Mag. Nat. Hist. ser. 5, vol. vi. p. 74.

A few specimens in about 40 fathoms. Hincks, as above, was the first to record it as a recent species. To his description may be added that there are eight mouth-spines, and that six of these are still visible in front of the oœcium, which is usually girdled with two ribs. I give illustrations from a living and from a dead example.

MICROPORELLA CORONATA (*Audouin*). (Pl. **39**. fig. 4.)

1826. *Flustra coronata*, Audouin, Savigny's Egypte, pl. 9. fig. 6.
1826. *Flustra umbracula*, id. ibid. pl. 9. fig. 7.

Zoœcia moderately tumid, surface granular and punctate; a crescentic pore a little below the lip; two vibracula of moderate length, held stiffly, situated far forwards on a line with the pore or even in advance of this close to the lip. Oral opening with a straight lip, above with six spines. Oœcium subglobose, its surface granulated. Audouin's *F. umbracula* is evidently simply *F. coronata* with oœcia. In my specimens the oœcia do not so much cover the zoœcium which they overlap; but Audouin's fig. 7 shows that the cluster had only a small space on which to extend itself.

Two specimens dredged at Madeira.

MICROPORELLA NUTRIX (*J. Jullien*). (Pl. **39**. fig. 1.)

1888. *Inversula nutrix*, J. Jullien, Miss. Sci. Cap Horn, Bryozoaires, p. 44, pl. 4. fig. 8.

Zoœcia of large size, as will be seen by comparison with the other figures on the plate which are drawn under the same power; the surface is coarse and roughly pitted, with pores at the bottom of the pits. The frontal pore is situated well forwards, and is sometimes connected with the oral opening. Small lateral openings are usually present on each side, almost on a level with the lower lip, and probably represent the base of vibracula. There are eight mouth-spines. The oœcium is not large, nor so high and globose as is usual in the genus.

A single specimen was dredged in deep water encrusting a shell of *Ditrupa*.

MICROPORELLA VERRUCOSA (*Peach*).

1880. *Diporula verrucosa*, Hincks, Brit. Marine Polyz. p. 220, pl. 30. figs. 1, 2.

I cannot see any grounds for regarding this as generically distinct from *Microporella*.

single small specimen dredged in about 40 fathoms.

TESSARODOMA BOREALE (*Busk*). (Pl. **38**. fig. 10.)

1851. *Pustulipora gracilis*, M. Sars, "Beretning Somm. 1849, Zool. Reise i Lofoten og Finmarken," Nyt Mag. for Naturvid. p. 26 (separate copy).
1860. *Onchopora borealis*, Busk, "Shetland Polyzoa," Quart. Jour. Micr. Sci. vol. viii. p. 214, pl. 29. figs. 1, 2.
1863. *Quadricellaria gracilis*, M. Sars, "Beskv. over nogle norske Polyz.," Videnskabs. Forhand. p. 15 (separate copy).
1864. *Quadricellaria gracilis*, Alder, Jour. Micr. Soc. vol. iv. p. 7, pl. 2.
1868. *Anarthropora borealis*, Smitt, Œfvers. K. Vet.-Akad. Förhand., Bihang, p. 8, pl. 24. figs. 25–29.
1869. *Tessarodoma gracile*, Norman, "Last Report Dredging Shetland," Report Brit. Assoc. for 1868, p. 309.
1873. *Tessarodoma boreale*, Smitt, Floridan Bryoz. pt. ii. p. 32, pl. 6. figs. 143–145.
1880. *Porina borealis*, Hincks, Brit. Marine Polyz. p. 229, pl. 31. figs. 4–8.

A single small specimen taken in 200–300 fathoms.

TRYPOSTEGA VENUSTA (*Norman*). H., W.

1880. *Schizoporella venusta*, Hincks, Brit. Marine Polyz. p. 276, pl. 30. figs. 6, 7.
1902. *Trypostega venusta*, Levinsen, "Studies on Bryozoa," Vid. Medd. f. d. naturf. Foren. i. Kjöbenhavn, p. 23.

Common on stones and shells in shallow water.

CHORIZOPORA ANNULATA (*Lamouroux*). H.

1821. *Berenice annulata*, Lamouroux, Exp. Méth. Ordre des Polyp. p. 81, pl. 80. figs. 5, 6.*

This is *Chorizopora Brongniartii* of Hincks. It is not infrequent on stones and shells in shallow water, and down to at least 40 fathoms.

HIPPOTHOA DIVARICATA (*Lamouroux*). W.

Frequent.

HIPPOTHOA FLAGELLUM, *Manzoni*.

A few specimens off Madeira (*A. M. N.*); Salvages, on *Ostrea cochlear* (*De Noronha*).

PORELLA CONCINNA, *Busk*. B.

I have not seen this.

PORELLA MINUTA, *Norman*, var. PUNCTATA, *Waters*. W.

I have examined the specimen thus named by Mr. Waters in the Funchal Museum. It is very like *P. minuta* in size and general structure, but the front of the zoœcia is punctate and the suboral boss only slightly developed. In a Greenland variety in my collection the surface differs from the usual type in being adorned with ribs radiating from the suboral boss.

PORELLA TUBULATA (*Busk*). B. (Pl. 38. fig. 8.)

1861. *Eschara tubulata*, Busk, Quart. Jour. Micr. Sci. vol. ix. p. 78, pl. 33. fig. 1.
1896. *Smittia Kœhleri*, L. Calvet, Camp. du Caudan, p. 259, pl. 7. figs. 4–8.
1903. *Cryptella Kœhleri*, L. Calvet, Résult. Camp. sci. Prince de Monaco, fasc. xxiii. Bryoz. prov. camp. de l' 'Hirondelle,' p. 77, pl. 7. fig. 4.

Small pieces dredged in 40–70 fathoms. Of ramose growth, the branches are oval in section, being somewhat flattened, with zoœcia all round; the orifices are elevated in tubular form, and are longer than broad or nearly round at different stages of growth; a round avicularium is situated within the lower lip. The surface is slightly rough, imperforate and very glossy in the living state; when dead a row of pores can be made out round the margin. I have not seen oœcia, and Calvet writes in the 'Caudan' paper: "Oœcies invisibles extérieurement, mais très apparentes sur les coupes dans le zoarium; elles sont globuleuses et communiquent avec l'orifice tubulaire." They are thus buried oœcia such as I have found in other species and designated 'cryptic oœcia' (Ann. & Mag. Nat. Hist. ser. 7, vol. xii. 1893, p. 115).

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* By some extraordinary lapsus in Ann. & Mag. Nat. Hist. ser. 7, vol. xi. 1903, p. 569, I referred to the wrong figures and name in Lamouroux, giving those of *prominens* instead of *annulata*, which latter was of course intended.

PORELLA TORQUATA (*J. Calvet*). (Pl. **39**. figs. 5–8.)

1903. *Cryptella torquata*, L. Calvet, Résult. Camp. sci. Prince de Monaco, fasc. xxiii. Bryoz. prov. camp. de l' 'Hirondelle,' p. 77, pl. 7. fig. 5.

Fragments of this species were dredged by me in about 70 fathoms at Madeira in 1897. Last spring Senhor De Noronha kindly gave me a very fine specimen which he had procured from about 60 fathoms at Porto Santo. This specimen measures one and a half inches high and slightly more in breadth, and consists of very numerous dichotomously dividing branches, which all curve with the tips slightly inward, and while their inner faces are devoid of zoœcia, the outer sides are thickly studded with them. The zoœcia are smooth, with a row of punctures round the margin, and generally a few scattered on the face, and here and there an occasional minute ovate avicularium, situated sometimes by the side of the oral opening, at others on the face of the zoœcium. The oral opening is subquadrate, with a small rounded avicularium just within the lower straight lip. The oœcium is tumid, as wide as the zoœcium and imperforate. The dorsal side is mapped out into divisions by impressed lines, and is studded with numerous small pores. When oœcia are developed and partially overhang the oral opening, the lower lip is at the same time often raised so as to conceal the oral avicularium.

This *P. torquata* with its frondose but not bushy growth, and its zoœcia confined to one face of the branches, recalls to my mind that form of *P. lævis* which is found in some of the western fiords of Norway. This variety instead of, as typically, forming a little bush and with zoœcia developed round its diverging branches and rosy in colour, has its branches developed almost on one plane, zoœcia on one face only, while the other is entirely without them and the colour is white. This variety (or possibly species) I have named *P. lævis* var. *gymnonoton*. The zoœcia of this northern form are in general characters similar to those of *P. torquata*; but the zoarium is much more strongly built, and in many minute details there is evidence of specific distinction.

PORELLA NITIDISSIMA, *Hincks*. H., W.

1880. *Porella nitidissima*, Hincks, Ann. & Mag. Nat. Hist. ser. 5, vol. vi. p. 78, pl. 9. fig. 2.

I dredged a few specimens of this strongly characterised species. When dead the front wall of the zoœcia appears as a complete network. This should be removed I think into the genus *Escaropsis*, Verrill (= *Escharoides*, auct. (*nec* Milne-Edwards and Gray).

RHYNCHOPORA BISPINOSA (*Johnston*). W.

I have seen the specimens in the Funchal Museum determined by Mr. Waters, but have not myself found the species.

RETEPORA COUCHII, *Hincks*. W.

A few specimens dredged (*A. M. N.*); on telegraphic cable (*De Noronha*).

Var. BIAVICULATA, *Waters*, "Medit. and New Zealand Reteporæ," Linn. Soc. Journ., Zool. vol. xxv. 1895, p. 262, pl. 6. fig. 18. This variety was also dredged.

RETEPORA MEDITERRANEA, *Smitt*. W.

Numerous fragments dredged (*A. M. N.*); very young specimens not yet reticulate in growth on Hydroids growing on the telegraphic cable (*De Noronha*).

RETEPORA JULIENNI, *Calvet*. W.

1883. *Retepora arborea*, J. Jullien, Dragages du 'Travailleur,' Bull. Soc. Zool. France, vol. vii. p. 21 (separate copy), pl. 16. figs. 49, 50.

1895. *Retepora Solanderia*, Waters, "Medit. and New Zealand Reteporæ," Linn. Soc. Journ., Zool. vol. xxv. p. 264, pl. 6. figs. 1–4.

1902. *Retepora Solanderia*, Calvet, Bryoz. marines des Côtes de Corse, p. 35, pl. 2. figs. 5–8.

1906. *Retepora Jullieni*, Calvet, Expéd. Sci. 'Travailleur' et 'Talisman,' Bryoz. p. 453.

J. Jullien named this non-reticulated species *Retepora arborea*, but that name was preoccupied by Risso. Waters referred it to the *Retepora Solanderia*, Risso, but I cannot find anything in that author's description by which to identify the species, and I therefore employ the name which Calvet has applied to it.

Specimens are in the Funchal Museum.

PSILESCHARA MADERENSIS, *Busk*. B.

1861. *Psileschara maderensis*, Busk, Quart. Jour. Micr. Sci. vol. ix. p. 79, pl. 32. fig. 2.

Busk's type specimen from Madeira is preserved in the British Museum.

SMITTINA LANDSBOROVII (*Johnston*). W.

The specimen, named by Waters, is in the Funchal Museum, and is quite the typical form.

SMITTINA MARMOREA (*Hincks*). H.

In deep water, two or three examples.

SMITTINA TRISPINOSA (*Johnston*). W.

On coal in the neighbourhood of the coaling ship (*A. M. N.*) ; Porto Santo and the Salvages (*De Noronha*).

ESCHARINA VULGARIS (*Moll*). B., W.

1867. *Lepralia Botterii*, Heller, Bryoz. Adriat. Meeres, p. 30, pl. 2. fig. 4.

Very common; dredged on stone, coals and shell (*A. M. N.*); Porto Santo and Grand Salvages (*De Noronha*).

A cotype of *L. Botterii*, given to me by Professor Heller, is undoubtedly the present species.

ESCHARINA PES-ANSERIS (*Smitt*). B., W. (Pl. **40**. fig. 7.)

1860. *Lepralia Woodiana*, Busk, Quart. Jour. Micr. Sci. vol. viii. p. 284 (not *L. Woodiana* of the Crag).
1873. *Hippothoa pes-anseris*, Smitt, Floridan Bryozoa, ii. p. 43, pl. 7. figs. 159, 160.
1899. *Schizoporella pes-anseris*, Waters, "Bryozoa from Madeira," Jour. Roy. Micr. Soc. p. 11, pl. 3. figs. 7, 8.

In about 70 fathoms on shell and coral in small zoaria. Dead specimens which I at first found, were taken to be a variety of *L. Dutertrei* (see fig. 7); and it seems clear that Busk fell into the same mistake, for the observations which he makes on the Madeiran specimens which he called *L. Woodiana* (= *L. Dutertrei*) exactly accord with the present species.

ESCHARINA HYNDMANNI (*Johnston*). H.

Common in 40–50 fathoms and deeper. Among the specimens a curious variety had a series of large pits all round the zoœcia just within the outer margin (*A. M. N.*). South of Cima, Porto Santo, in 90 fathoms, and Grand Salvages (*De Noronha*).

ESCHARINA JOHNSTONI (*Quelch*).

1880. *Schizoporella simplex*, Hincks, Brit. Marine Polyz. p. 246, pl. 35. figs. 9, 10.
1884. *Schizoporella Johnstoni*, Quelch, Ann. & Mag. Nat. Hist. ser. 5, vol. xiii. p. 217.

Four specimens from deep water ; three of these show no sign of the usual suboral umbo ; the fourth, on *Ditrupa*, has some of the zoœcia without the umbo, others with it, and others with the umbo of gigantic size.

SCHIZOPORELLA UNICORNIS (*Johnston*). B., W.

I have shown elsewhere that the genus *Escharina* must be used with *E. vulgaris* as the type. *S. linearis* may stand as the type species of *Schizoporella*, if that genus, contrary to strict rule, is to be maintained ; but some of the species here included are scarcely congeneric, and will probably find another place when the work of Dr. Levinsen is published.

This species is a common one between tide-marks and down to 15–20 fathoms.

SCHIZOPORELLA SANGUINEA (*Norman*). H., W.

1871. *Lepralia pertusa*, Manzoni, "Suppl. fauna Bryoz. Mediterr.," Sitz. k. Akad. Wissensch. vol. lxiii. p. 7, pl. 2. figs. 5, 6.

Large patches encrusting coal dredged near the coaling ship at Funchal.

SCHIZOPORELLA AURICULATA (*Hassall*). H., W.

Specimens received from Prof. Heller as his *Lepralia spongites* are what has been known as *S. auriculata* var. *ochracea*, Hincks (pl. xxix. fig. 7) with spatulate avicularia mingled with those of ordinary form.

The species is not rare at Madeira in shallow water.

SCHIZOPORELLA BIAPERTA (*Michelin*). H., W. (Pl. **40**. figs. 3, 4.)

Var. DIVERGENS, *Smitt*.

1873. *Hippothoa divergens*, Smitt, Floridan Bryoz. p. 47, pl. 9. figs. 177, 179.
1880. *Schizoporella biaperta*, var. *divergens*, Hincks, Brit. Marine Polyz. p. 256, pl. 40. figs. 7–9.

Senhor De Noronha has sent to me the variety *divergens* agreeing closely with Guernsey specimens, from Porto Santo.

SCHIZOPORELLA ARMATA, *Hincks*. H., W. (Pl. **40**. figs. 5, 6.)

I have not seen Madeiran specimens; but I figure an Algerian specimen, which Dr Levinsen kindly gave me, for comparison with *S. biaperta* var. *divergens*.

SCHIZOPORELLA DISCOIDEA (*Busk*). B., W.

1859. *Lepralia discoidea*, Busk, Quart. Jour. Micr. Sci. vol. vii. p. 66, pl. 22. figs. 7, 8.

Frequent in deep water. Madeira (*A. M. N.*); Porto Santo, 20–60 fathoms (*De Noronha*).

SCHIZOPORELLA NORONHAI, n. sp. (Pl. **41**. fig. 1.)

The zoœcia are broader than long, widest in the middle, contracted behind and before, and much so in the position of the oral opening; oral aperture small with a sinus on the lower lip, and eight marginal spines. Surface of zoœcium punctate, and a few scattered punctures larger than the rest. Avicularian (or vibracular) openings on each side below the aperture with a central bar. Oœcium remarkably small as compared with the breadth of the zoœcium, well raised and distinctly punctated. Colour of dead specimen pure white.

A single specimen attached to the telegraphic cable, sent to me by Senhor De Noronha, after whom I name the species, in the spring of 1908.

This comes perhaps near to *Schizoporella Richardi*, Jullien and Calvet (p. 140, pl. xvi. fig. 6), but in that species there is only a single avicularium and that central just below the sinus, and the oœcium is quite different in sculpture.

SCHIZOPORELLA SCHMITZI, n. sp. (Pl. **41**. fig. 2.)

Zoœcia somewhat longer than broad, only moderately convex, surface smooth with scattered conspicuous pores. Oral opening as broad or broader than long (exclusive of sinus), sinus not narrow but sharply defined at the corners, spines on the narrow margin apparently about four. Avicularium of large size on one side a little below the lower lip; the bar not persistent but in one instance it is still to be seen perfect.

One specimen pure white and the whole texture delicate, apparently not long dead on a shell of *Pectunculus*.

Named after Padre Schmitz, who has done so much to promote the study of Natural History among the Portuguese at Madeira.

This species is somewhat like *Lacerna hosteensis*, Jullien (Miss. Sci. Cap Horn, Bryoz. 1888, p. 48, pl. i. fig. 2), but in that species the pores are represented as confined to the sides of the zoarium, and there is no avicularium.

ESCHAROIDES COCCINEA (*Abildgaard*). W.

This is *Lepralia appensa*, Hassall. For this use of *Escharoides* see Norman, Ann. & Mag. Nat. Hist. ser. 7, vol. xii. 1903, p. 116.

Two small specimens on shell.

ESCHARELLA OBSCURA, n. sp. (Pl. **40**. fig. 8.)

A curious species of which I have only found a single specimen. It consists of a basal layer, slightly granulated, and marked with very fine microscopic crescentic lines. On this basal layer there is no indication of separate zoœcia further than that from it rise papillæ surmounted by an oral orifice looking directly upwards; the orifice is irregularly round in form, and the lower lip is characterised by a well pronounced denticle just within it. In some instances the back of the papillæ is swollen in a manner which may indicate the presence of the oœcium there. The type of the genus *Escharella* is *E. immersa*, Fleming (=*Membranipora Peachii*, Johnston).

LEPRALIA PALLASIANA (*Moll*). H.

I have called attention elsewhere to the fact that the name *Lepralia* cannot possibly be retained in use in the sense in which Hincks employed it, because :

1st. The genus as used by Hincks did not include a single species assigned to it by Johnston in the first edition of his work when he instituted the genus.

2nd. Because Hincks included in his *Lepralia*, *Eschara foliacea*, and therefore all species congeneric with that species should have been embraced under that old name. But until Dr. Levinsen's forthcoming work is published I think it best to leave things as they are.

Senhor De Noronha sent me *Lepralia Pallasiana* from Porto Santo growing in free foliaceous form with zoœcia on one face only. It exactly resembled English specimens in its zoœcia, and had no oœcia.

LEPRALIA PERTUSA (*Esper*). H.

Unknown to me as Madeiran.

LEPRALIA PERISTOMATA, *Waters*. B., W.

1860. *Lepralia Mangnevilla*, Busk, Quart. Journ. Micr. Sci. vol. viii. p. 284, pl. 31. fig. 5.

1899. *Lepralia peristomata*, Waters, "Bryozoa from Madeira," Journ. Roy. Micr. Soc. p. 10, pl. 3. fig. 20 (the operculum).

Busk renamed *L. Mangnevilla*, Busk (*nec* Savigny) in the 'Challenger' Report, p. 159, *Mucronella canalifera*, but the species figured from the 'Challenger' Expedition appears to have no connection with that which lives at Madeira.

Lepralia peristomata is very common at Madeira, where I have met with it in depths from 15 to 70 fathoms.

LEPRALIA PORCELLANA, *Busk*. B., W. (Pl. **40**. figs. 1, 2.)

1860. *Lepralia porcellana*, Busk, Quart. Journ. Micr. Sci. vol. viii. p. 283, pl. 31. fig. 3.

1873. *Lepralia cleidostoma*, Smitt, Floridan Bryoz. ii. p. 62, pl. 11. figs. 217–219.

1899. *Lepralia cleidostoma*, Waters, "Bryozoa from Madeira," Journ. Roy. Micr. Soc. p. 10, pl. 3. fig. 16 (the operculum).

Examination of the type of *L. porcellana* in the British Museum proves it to be a somewhat overgrown specimen of Smitt's *L. cleidostoma* : the former name is as appropriate to the porcelain-like look of the zoœcia, as the latter is to the very marked key-like oral opening.

Not rare on stones between tide-marks.

Lepralia collaris *J. Jullien.* W. (Pl. **41**. figs. 3, 4.)

1888. *Lepralia collaris,* J. Jullien, Miss. Sci. du Cap Horn, Bryozoaires, p. 57, pl. 3. fig. 7.

1899. *Lepralia Pallasiana,* var. *strumata,* Waters, "Bryoz. from Madeira," Journ. Roy Micr. Soc. p. 10, pl. 3. figs. 33, 34.

This species, for thus I regard it, is very abundant on stones between tidemarks at Gorgulho, Madeira, and probably therefore all along the coast. I fail to see the connection with *L. Pallasiana.* It seems to be very constant in its characters. There are four mouth-spines, two on each side of the orifice.

Lepralia contracta, *Waters.* W. (Pl. **41**. figs. 5. 6.)

1899. *Lepralia contracta,* Waters, "Bryoz. from Madeira," Journ. Roy. Micr. Soc. p. 11 pl. 3. fig. 21.

A remarkable species especially characterised by its curious oœcium, with the door-like frontal portion (see Waters's figure, lower zoœcium). When this is broken away, as it is apparently to give exit to the embryos, the aspect of the zoarium with the remaining portion of the oœcia still *in situ* is very striking. I have found two or three specimens which have been compared with the type preserved in the Funchal Museum.

Lepralia mucronelliformis, *Waters.* W.

1899. *Lepralia mucronelliformis,* Waters, "Bryoz. from Madeira," Journ. Roy. Micr. Soc. p. 11, pl. 3. fig. 21.

I have seen the type in the Funchal Museum but no other specimen.

Lepralia lata, *Busk.* B., H.

1856. *Lepralia lata,* Busk, Quart. Journ. Micr. Sci. vol. iv. p. 309, pl. 20. figs. 1–3.

1867. *Lepralia Kirchenpaueri,* Heller, Bryoz. Adriat. Meeres, p. 29, pl. 2. fig. 11.

1869. *Lepralia lata,* Manzoni, "Bryoz. Plioc. Ital.," Sitz. k. Akad. Wissensch. vol. lix. p. 4, pl. 1. fig. 6.

1870. *Lepralia cuspidata,* id. ibid. vol. lxi. p. 5, pl. 1. fig. 3.

1871. *Lepralia lata,* id. "Suppl. fauna Bryoz. Mediterr.," ibid. vol. lxiii. p. 8, pl. 3. fig. 2.

1879. *Lepralia lata,* Waters, "Bryoz. Bay of Naples," Ann. & Mag. Nat. Hist. ser. 5 vol. iii. p. 42, pl. 15. figs. 12, 13.

1880. *Lepralia adpressa,* Hincks, Brit. Marine Polyz. p. 307, pl. 33. figs. 5–7.

I do not refer this species to the *L. adpressa* of Busk, because I have not seen or heard of any specimen from the Atlantic which has sculpture corresponding with that found in *L. adpressa* from the Pacific at Chiloe Island. It is under this last name, however, that Busk recorded the species from Madeira.

The orifice is very slightly contracted below the middle and then widens out before the sides join the straight line of the lower lip. The surface is punctated in an early stage, and granulated at a later. On each side just below the corners of the lower lip a boss of greater or less size is generally developed. In examples where these bosses are of considerable size, the oœcium is also elevated into a high mound. In other cases where the lateral bosses are slightly developed or altogether absent, the oœcium though still raised centrally is sculptured down its sides with little ribs.

I have found this species at Madeira, Naples, and Guernsey, and have received it from the Adriatic (Heller as *Lepralia Kirchenpaueri*).

The specimens dredged at Madeira were encrusting small univalve shells, *Bellardiella gracilis*, *Nassa limata*, and *Calliostoma Montagui*.

LEPRALIA POISSONII (*Audouin*). W. (Pl. **41.** figs. 7, 8.)

1826. *Flustra Poissonii*, Audouin, Savigny's Egypte, pl. 10. fig. 5.
1880. *Lepralia Kirchenpaueri*, var. *teres*, Hincks, Ann. & Mag. Nat. Hist. ser. 5, vol. v. p. 77, pl. 9. fig. 7.
1885. *Lepralia Poissonii*, Hincks, Ann. & Mag. Nat. Hist. ser. 5, vol. xv. p. 256.
1888. *Lepralia Poissonii*, Kirkpatrick, Ann. & Mag. Nat. Hist. ser. 6, vol. i. p. 78, pl. 8. fig. 1.

Mr. Waters has included this species in his paper on Madeiran Polyzoa; the specimen in the Funchal Museum is dead. I dredged similar dead examples in 1897, but lately Senhor De Noronha has sent me beautiful examples from Porto Santo and the Grand Salvages. These have both the vibracula and the wonderful long encircling setose spines in the finest order. I figure both the living and dead state. In Audouin's figure what should have been vibracula are represented by boss-like swellings such as occur in *L. lata*.

Escharella setosa, Smitt (Floridan Bryoz.) has been referred to *L. Poissonii*, but I have the species from lat. 18° 22′ N., long. 89° 21′ W., 'Blake' Expedition, and it is quite distinct.

When dead, *L. Poissonii* bears a strong resemblance to *L. lata*, but the orifice is narrower, especially below the constriction of the sides and that constriction is more marked than in *L. lata*, while the places of the lateral bosses of *L. lata* are here occupied by vibracula or the rounded openings which they occupied. The front of the zoœcia is imperforate and nearly smooth. The oœcium subglobose, and originates very far down on the sides of the oral opening, nearly down to the lower lip, but upon the aperture itself it does not at all encroach either at the sides or above, in fact it takes the form of a night-cap with an arched band in front, but it has not the centra boss characteristic of the oœcium of *L. lata*.

In the living condition there are two vibracula which are directed usually downwards and inwards. There are no mouth-spines; but the lower margins of the zoœcia are surrounded by about fourteen exceedingly long setiform spines, which may be presumed to be connected with the ovicells. They are extremely fragile, and are very easily abraded.

HEMICYCLOPORA MULTISPINATA, *Busk*. B., H.,W. (Pl. **42**. figs. 6, 7.)

1861. *Lepralia multispinata*, Busk, Quart. Journ. Micr. Sci. vol. ix. p. 78, pl. 32. fig. 5.

1903. *Lepralia discrepans*, Jullien & Calvet, Résult. Camp. sci. Prince de Monaco, xxiii. Bryozoaires, p. 72, pl. 10. fig. 1.

This species is very closely allied to *H. polita*, Norman (=*Discopora emucronata*, Smitt) of northern seas. The genus is allied to *Escharella* (=*Mucronella*) but is without the denticle (*lyrula*) within the lower lip. As compared with *H. polita*, the lip is more pouting, especially in fertile cells. The mouth-spines are more numerous, usually eight ; small hinge denticles are present, and the oral opening itself is horse-shoe shaped ; the upper portion of the zoœcium is semi-erect ; and the globose oœcium inclines backwards ; the surface of the zoœcium is finely granular, but in dead specimens looks smooth. There are usually no avicularia, but in a single case large spatulate organs (fig. 7) are developed under very remarkable circumstances. The zoarium is on a flat surface over the edge of which it makes its way almost at a right angle. On the brow of the descent stand right outwards four large spatulate avicularia. It would seem as if they had been developed in order that they might investigate and report if it was safe that zoœcia should make their way over the precipice. They curiously reminded me of what I had seen from my window a short time before, when beams of wood were projected outwards from the parapet of the church tower, in order that a platform might from them be suspended to enable the dial of the clock to be gilded. There is a small peculiarity in the oral opening of *H. polita* which distinguishes it from that of the present species ; at the corners of the lower lip the surface of the zoœcium is raised in a little fold (see my original figures, Ann. & Mag. Nat. Hist. ser. 3, vol. xiii. pl. xi. fig. 1, and Hincks, Brit. Marine Polyz. pl. xxxii. fig. 5).

H. multispinata is a deep-water form, dredged in about 70 fathoms.

PHYLACTELLA LABROSA (*Busk*). H., W. (Pl. **38**. fig. 9.)

1899. *Phylactella labrosa*, Waters, "Bryozoa from Madeira," Journ. Roy. Micr. Soc. p. 15, pl. 3. fig. 14.

1899. *Phylactella punctigera*, id. ibid. p. 15, pl. 3. fig. 13.

I think that Mr. Waters is mistaken in supposing that two species have been confused under the name *P. labrosa*. Busk's original figure represents the ovicell imperforated and shows no oral denticle ; his type specimen came from off Belfast. Now I have the species from the same locality, and it would seem that the oœcia are punctated in the younger state, but that the punctures are closed up at a later stage, and occasionally the oral denticle (*lyrula*) is seen in the throat exactly as in the next variety. What Waters has named *P. punctigera* has a freely punctured oœcium and a denticle within the throat, such are examples in my collection from Wick (*Peach*) and from Madeira. All the sixteen specimens I possess from the last locality are what Waters names *P. punctigera*. But among them is one which presents an entirely new and unexpected feature, for some of its zoœcia have a nearly round avicularium developed on the lower lip (fig. 9). In British examples there seems to be always a tendency of the zoœcia to run out into straight lines, but this is not the case in those from Madeira. A marked counterpart of these two modes of propagation occurs in *Schizoporella Barleei* and its variety in chain-like development, var. *Alderi*.

PHYLACTELLA COLLARIS (*Norman*).

One specimen and some fragments from deep water.

LAGENIPORA COSTAZEI (*Audouin*).

1858. *Cellepora Hassalii*, var. *a*, Busk, Quart. Journ. Micr. Sci. vol. vi. p. 263, pl. 20. fig. 6.
1899. *Lagenopora Costazei*, Waters, Journ. Roy. Micr. Soc. p. 13.
1906. *Lekythopora laciniosa*, Calvet, Expéd. Sci. ' Travailleur ' et ' Talisman,' Bryozoaires, p. 443, pl. 29. figs. 13, 14.

This is a very variable species; which at Madeira is common on stones between tide-marks, or forms little clusters on the fronds of *Corallina* in rock-pools and shallow waters, or wraps itself in little rolls round such things as the stems of *Antipathes*. Busk's figure of what he calls "var. *a*" illustrates fairly the tide-mark form. The processes which are surmounted by avicularia vary greatly both in size and elevation. Senhor De Noronha has sent it to me from Porto Santo and the Salvages.

LAGENIPORA LUCIDA (*Hincks*). H., W.

1899. *Lagenopora lucida*, Waters, "Bryozoa from Madeira," Journ. Roy. Micr. Soc. p. 13 pl. 3. figs. 25–30.

On shell from deep water.

Mr. Waters, in the paper above referred to, gives what he considers to be the full synonymy of the species.

LAGENIPORA IGNOTA, n. sp. (Pl. **42**. figs. 10–13.)

Rising in papilliform, round branches to a height of about half an inch (fig. 10). Zoœcia generally suberect, so that the oral opening looks directly upwards, and as much of the zoœcium is behind it as there is in front;

surface imperforated. Oral opening with two small round avicularia, usually almost sessile, but sometimes raised on a pedicil of moderate length ; often there is only a single oral avicularian and this seems to be generally the case when an oœcium is present. Oœcium having a frontal punctated area. Large spatulate avicularia (fig. 13) are scattered freely over the zoarium, and are often present in extraordinary numbers. The operculum is figured (fig. 12). The oral avicularia are easily abraded and dead specimens will often show no sign of them.

Dredged not uncommonly at Madeira in about 70 fathoms.

This species is evidently allied to *C. rudis* of Busk ('Challenger' Polyzoa, p. 199, pl. xxviii. fig. 7, and pl. xxxvi. fig. 7), which was dredged in 600 fathoms, lat. 37° 17′ S., long. 53° 52′ W. ; but it would seem to differ in the much smaller size of the oral avicularia.

CELLEPORA RAMULOSA (*Linné*). B., W.

Common in rather deep water, but only small specimens occur, never large clusters such as are found on the British coast.

CELLEPORA DICHOTOMA, *Hincks*. W.

Recorded by Waters as Madeiran. In the Johnsonian collection I found some specimens named *C. dichotoma,* which were a delicate, slender form of *C. ramulosa.*

CELLEPORA AMPULLACEA, *Busk*. B.

1861. *Cellepora ampullacea*, Busk, Quart. Journ. Micr. Sci. vol. ix. p. 78, pl. 32. fig. 4.

I have not succeeded in finding the type specimen, but I should very much doubt its being a mature form.

CELLEPORA ARMATA, *Hincks.*

Common, growing in an erect form with branches, the whole massive. Found down to 70 fathoms (*A. M. N.*); Porto Santo (*De Noronha*).

CELLEPORA SARDONICA, *Waters*. W.

1879. *Cellepora sardonica,* Waters, "Bryozoa Bay of Naples," Ann. & Mag. Nat. Hist. ser. 5, vol. iii. p. 196, pl. 14. figs. 2, 5, 5 *a*, 6.

1885. *Cellepora sardonica,* Waters, "Use of Avicularian Mandible in determination of species," Quart. Journ. Micr. Sci., Zool. ser. 2, vol. viii. pl. 14. fig. 33.

1899. *Cellepora sardonica,* Waters, "Bryozoa from Madeira," Journ. Roy. Micr. Soc. p. 12.

Recorded by Waters.

None of the following species can remain, I think, in the genus *Cellepora.*

CELLEPORA MARGARITACEA (*Pourtalès*). (Pl. 42. fig. 14.)

1867. *Vincularia margaritacea,* Pourtalès, "Contrib. Fauna Gulf Stream," Bull. Soc. Comp. Zool. vol. i. p. 110.

1873. *Cellepora margaritacea,* Smitt, Floridan Bryoz. pt. ii. p. 53, pl. 9. figs. 187–192.

1879. *Cellepora margaritacea,* Waters, "Bryozoa Bay of Naples," Ann. & Mag. Nat. Hist. ser. 5, vol. iii. p. 199, pl. 24. figs. 8–10.

Mr. Waters gives *Buskia nitida,* Heller, as a synonym, but he does not state that he has seen a type; without such a specimen, I cannot quote that Adriatic species as identical with the present. Again, he says that his Neapolitan examples have "two avicularian chambers, which overlook the mouth." In my specimens from Naples and Madeira I only see one avicularium of large size as figured by Smitt. I dredged it at Madeira; Senhor De Noronha procured it on Hydroids from the telegraphic cable; and in the Funchal Museum I found two unnamed specimens in a pill-box with the following note: "'Brittannia,' do Cabo," the longer, the shorter "'Scotia'," apparently therefore procured from the telegraphic cable.

CELLEPORA ROTUNDORA, nom. nov. W. (Pl. 42. figs. 8, 9.)

1899. *Cellepora ianthina,* Waters, Journ. Roy. Micr. Soc. p. 14, pl. 3. figs. 1–3 (nec *Cellepora edax,* var. *ianthina,* Smitt).

I fail to recognise the species which Waters described from Madeira, and of which I have found numerous examples in about 70 fathoms, on small shells and especially on *Ditrupæ,* as Smitt's *Cellepora edax,* var. *ianthina.* Smitt's drawings may be relied upon as accurate, and the *Lepralia*-like orifice shown in his figure is entirely different from the perfectly round oral opening (*rotundus* and *ora,* an edge) of the Madeiran species. The rim is quite circular without any constriction of the margin, but in the throat a little projecting point on each side indicates the place of attachment of the operculum. The oœcium is remarkable with the lower portion of the front quite open, it is very thin, and the oœcia are generally broken down, as represented on the right hand in the figure here given. I leave the species where Waters placed it, but it cannot remain in *Cellepora.* The operculum is of unusual form (fig. 9).

CELLEPORA SEXSPINOSA, *Waters.* W.

1899. *Cellepora sexspinosa,* Waters, "Bryozoa from Madeira," Journ. Roy. Micr. Soc. pl. 3. fig. 12.

? 1906. *Lepralia Watersi,* Calvet, Bull. Mus. Hist. Nat. p. 216.

? 1906. *Lepralia Watersi,* id. Expéd. Sci. 'Travailleur' et 'Talisman,' Bryozoaires, p. 412, pl. 27. fig. 11.

The type specimen of Waters, which is in the Museum at Funchal, is the only example I have seen. It certainly is no *Cellepora,* nor do I see its connection with *Lepralia.*

EXPLANATION OF THE PLATES.

PLATE 33.

Fig. 1. *Idmonea atlantica,* Forbes, natural size.
2. ,, ,, Portion magnified, seen from the side.
3. ,, *Meneghinii,* Heller. Natural size.
4. ,, ,, Portion magnified.
5. ,, ,, Back of branch.
6. ,, *pedata,* n. sp. Natural size.
7. ,, ,, From above.
8. ,, ,, From the side.
9. ,, ,, Back of branch.
10. ,, *concava,* Reuss, natural size.
11. ,, ,, From above.
12. ,, ,, From below.

PLATE 34.

Fig. 1. *Filisparsa irregularis,* Meneghini, natural size.
2. ,, ,, Portion magnified.
3. ,, ,, Back of branch.
4. ,, ,, Var. *pennata,* nom. nov., natural size.
5. ,, ,, ,, Portion magnified.
6. ,, ,, Var. *superba,* J. Jullien, natural size.
7. ,, ,, ,, Portion magnified.
Figs. 8, 9, 10. *Entalophora deflexa,* Couch. Three specimens, natural size.
11, 12, 13. ,, ,, The same specimens, magnified.

PLATE 35.

Fig. 1. *Entalophora proboscidea* H. M.-Edwards, natural size.
2. ,, ,, Portion magnified.
3. ,, ,, Portion of another specimen, magnified.
4. ,, *elegans,* nom. nov., natural size.
5. ,, ,, Portion, magnified.
6. *Crisia fistulosa,* Heller, natural size, and magnified.
7. *Alcyonidium effusum,* n. sp., natural size.
8. ,, ,, Portion, enlarged.
9. ,, ,, Polyps, more highly magnified.

PLATE 36.

Fig. 1. *Scrupocellaria reptans,* var. *Bertholletii,* Audouin.
2. ,, ,, ,, The back.
3. *Bugula dentata,* Lamouroux.
4. ,, *gracilis,* Busk, natural size.
5. ,, ,, Portion magnified.
6. ,, ,, Avicularium.
7. *Membraniporella nitida,* var. *intermedia,* nov. var.
8. ,, *sceletos,* Busk.

PLATE 37.

Fig. 1. *Onychocella angulosa*, Reuss, showing the large avicularia.
2. *Cupularia guineensis*, Busk, natural size.
3. „ „ Zoœcia.
4. „ „ Under surface.
5. „ „ Dead zoœcia.
6. „ „ Under surface, dead specimen.
Figs. 7, 8, 9. *Cupularia Lowei*, Gray. Three specimens, natural size.
Fig. 10. „ „ Living zoœcia.
11. „ „ Under surface.
12. „ „ Dead zoœcia.

PLATE 38.

Fig. 1. *Cupularia Johnsoni*, Busk. Specimens, natural size.
2. „ „ Zoœcia from living specimen.
3. „ „ Zoœcia, under surface.
4. „ „ Zoœcia from dead specimen.
5. „ „ Variety, natural size.
6. „ „ Under surface of foregoing variety.
7. *Microporella marsupiata*, Busk.
8. *Porella tubulata*, Busk.
9. *Phylactella labrosa*, Busk, with avicularia.
10. *Tessarodoma boreale*, Busk, natural size and magnified.

PLATE 39.

Fig. 1. *Microporella nutrix*, J. Jullien.
2. „ *decorata*, Reuss.
3. „ „ with oœcium.
4. „ *coronata*, Audouin.
5. *Porella torquata*, Calvet. Fragment, natural size.
6. „ „ Portion, magnified.
7. „ „ Zoœcia, more magnified.
8. „ „ Back of branch.

PLATE 40.

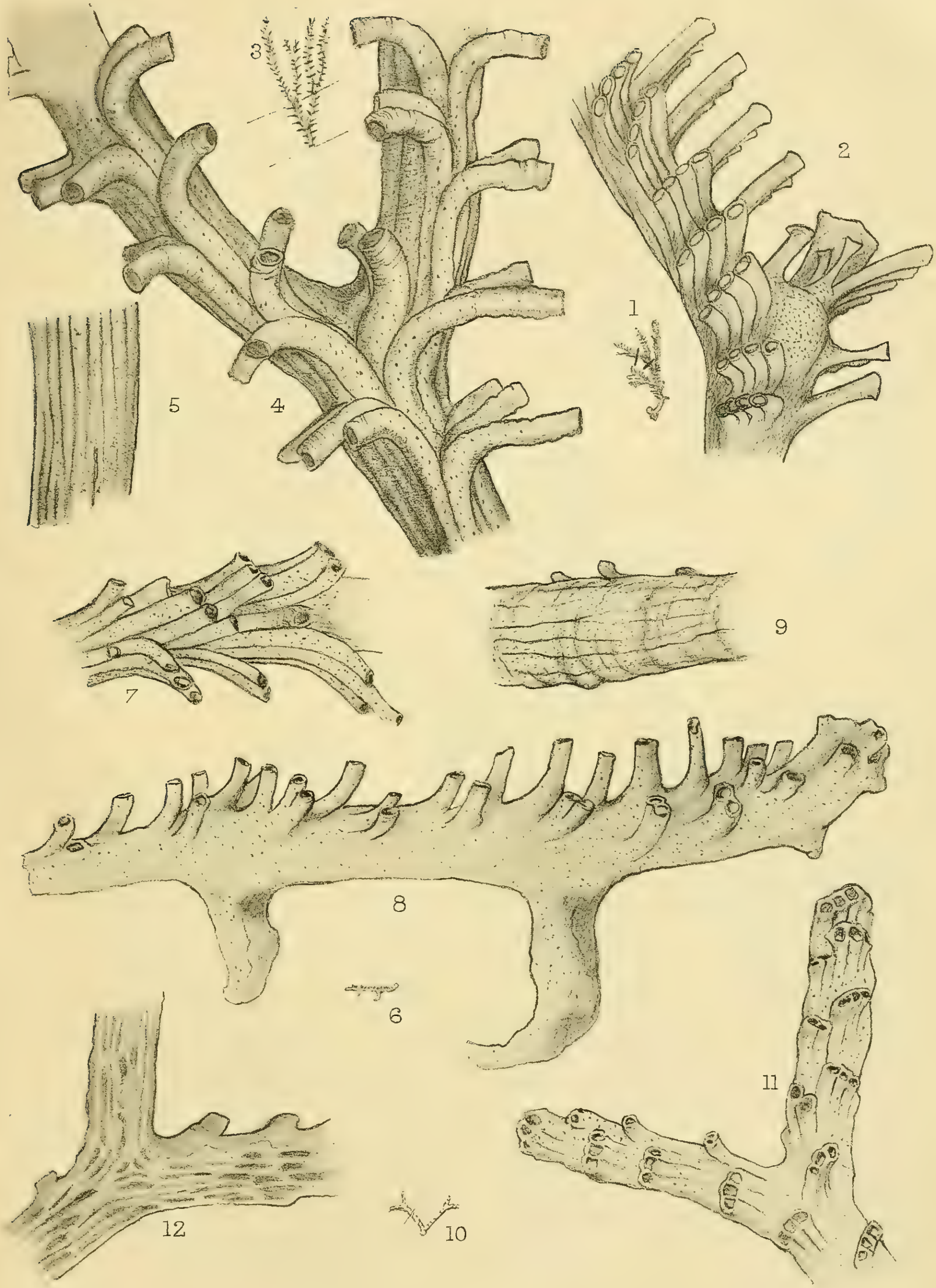
Fig. 1. *Lepralia porcellana*, Busk.
2. „ „ The operculum.
3. *Schizoporella biaperta*, var. *divergens*.
4. „ „ „ The operculum.
5. „ *armata*, Hincks. From a Mediterranean specimen.
6. „ „ The operculum.
7. *Escharina pes-anseris*, Smitt. Dead zoœcium.
8. *Escharella obscura*, n. sp.

Plate **41.**

Fig. 1. *Schizoporella Noronhai,* n. sp.
2. ,, *Schmitzi,* n. sp.
3. *Lepralia collaris,* J. Jullien.
4. ,, ,, The operculum.
5. ,, *contracta,* Waters.
6. ,, ,, Oral opening, more enlarged, to show serrated edge of upper margin.
7. ,, *Poissonii,* Audouin.
8. ,, ,, Dead specimen.

Plate **42.**

Fig. 1. *Catenicella Contei,* Audouin. Young specimen, from the front.
2. ,, ,, ,, from the side.
3. ,, ,, Zoœcia and oœcium.
4. *Cellularia nodosa,* n. sp.
5. ,, ,, natural size.
6. *Hemicyclopora multispinata,* Busk.
7. ,, ,, Remarkable specialised avicularia.
8. *Cellepora rotundora,* nom. nov.
9. ,, ,, Operculum.
10. *Lagenipora ignota,* n. sp. Erect form.
11. ,, ,, Portion of same, magnified.
12. ,, ,, The operculum.
13. ,, ,, Spatulate avicularium.
14. *Cellepora margaritacea,* Pourtalès, natural size and magnified.



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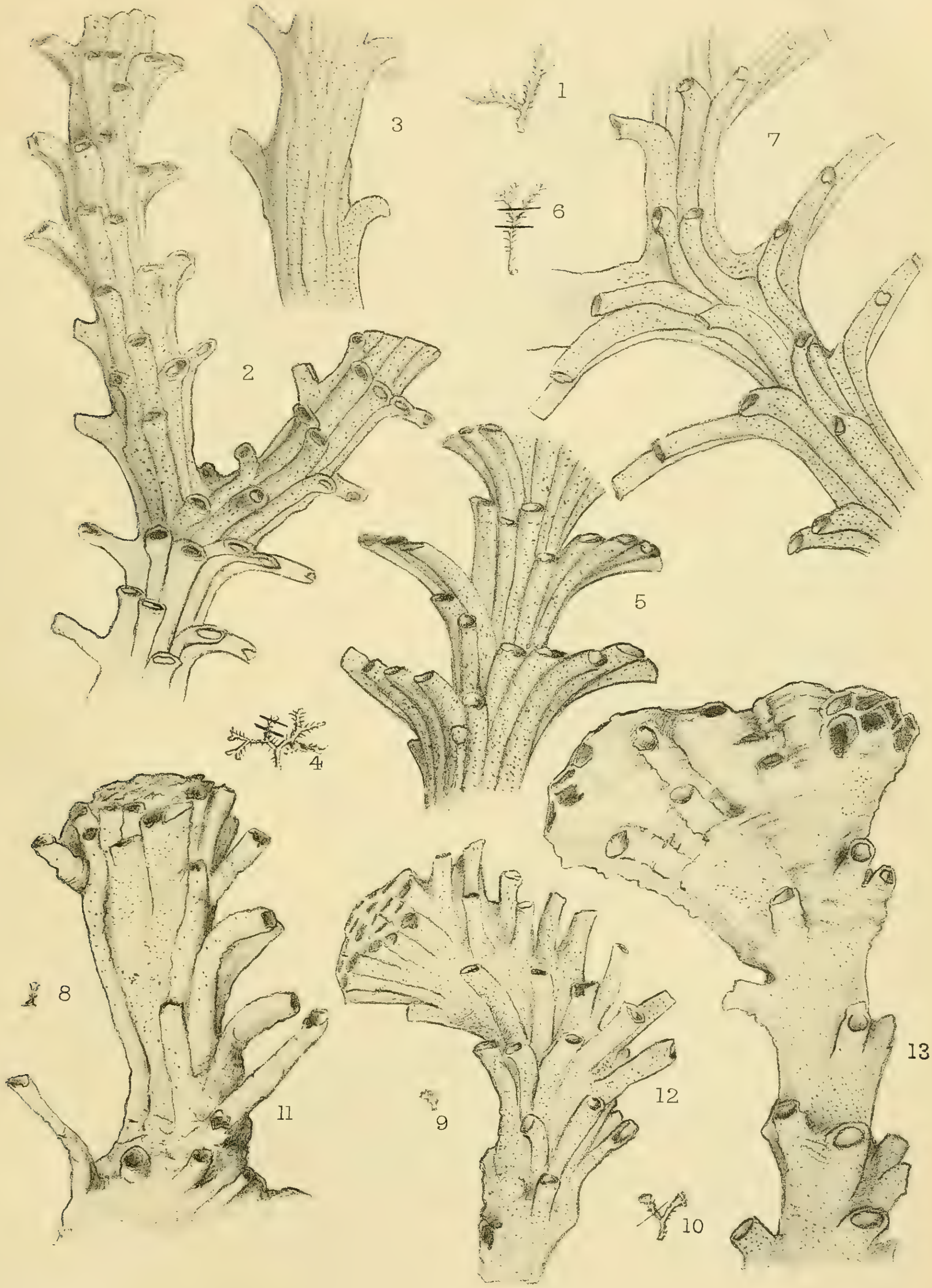

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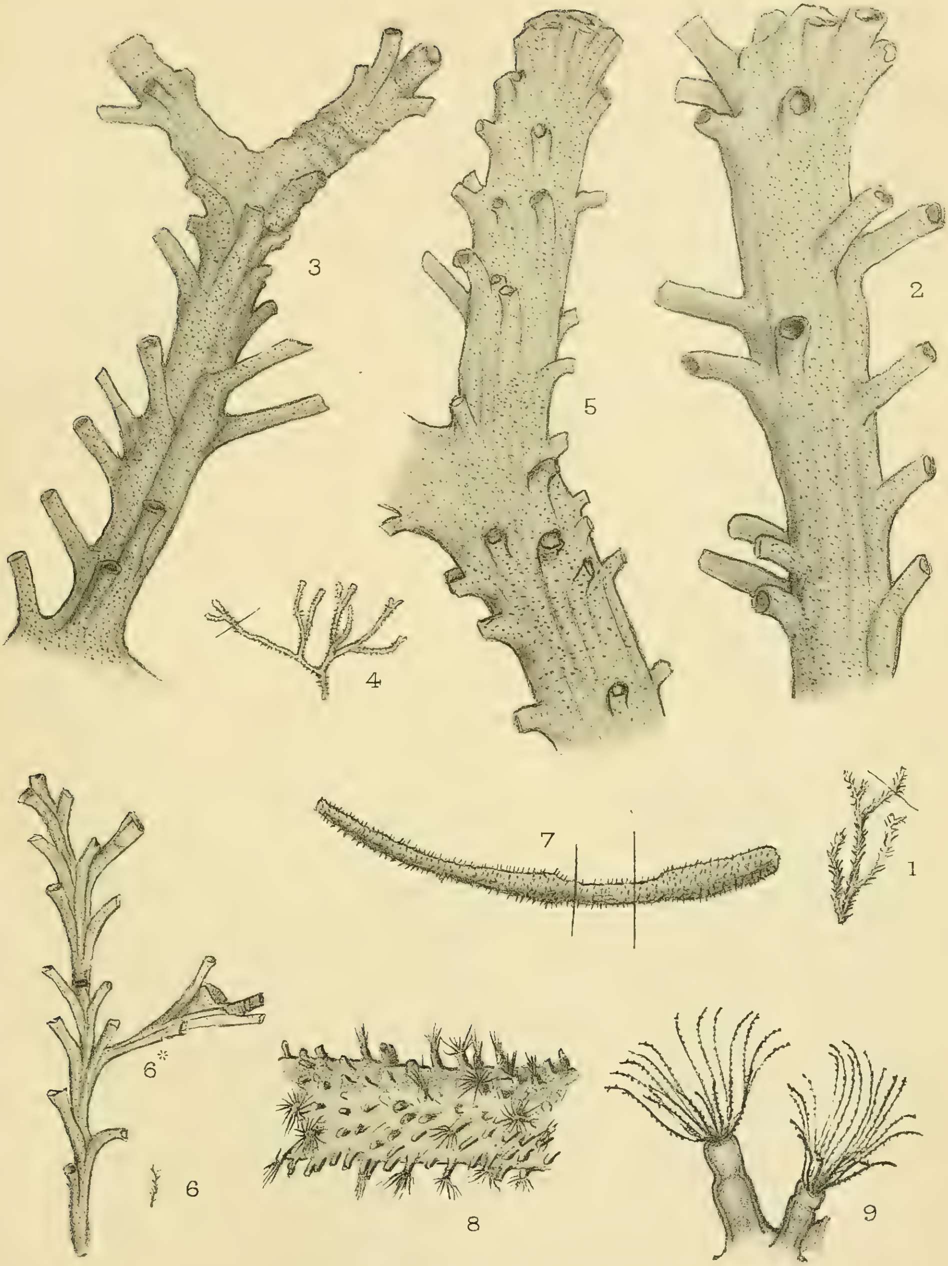

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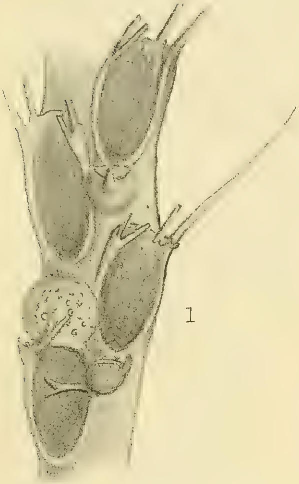

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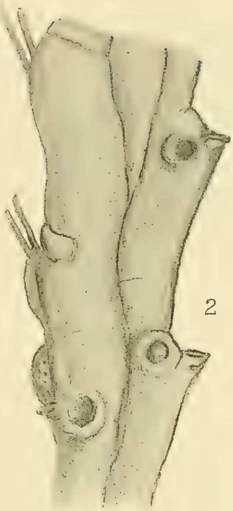

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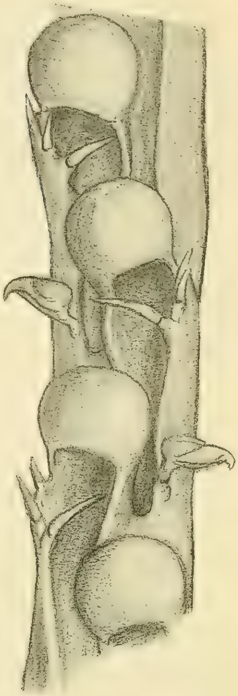

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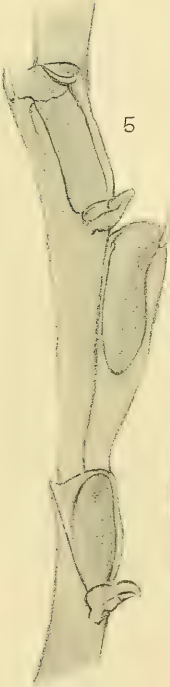

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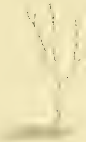

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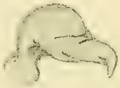

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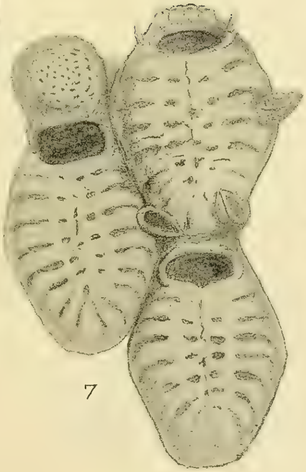

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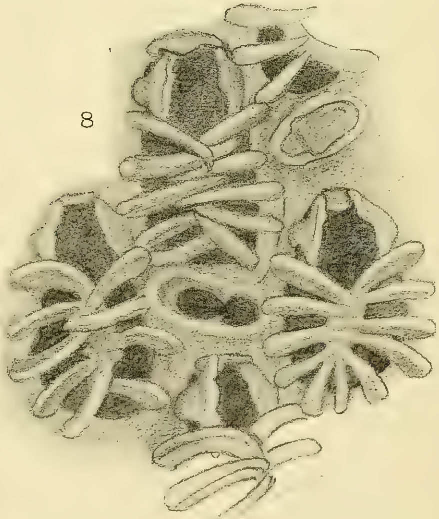

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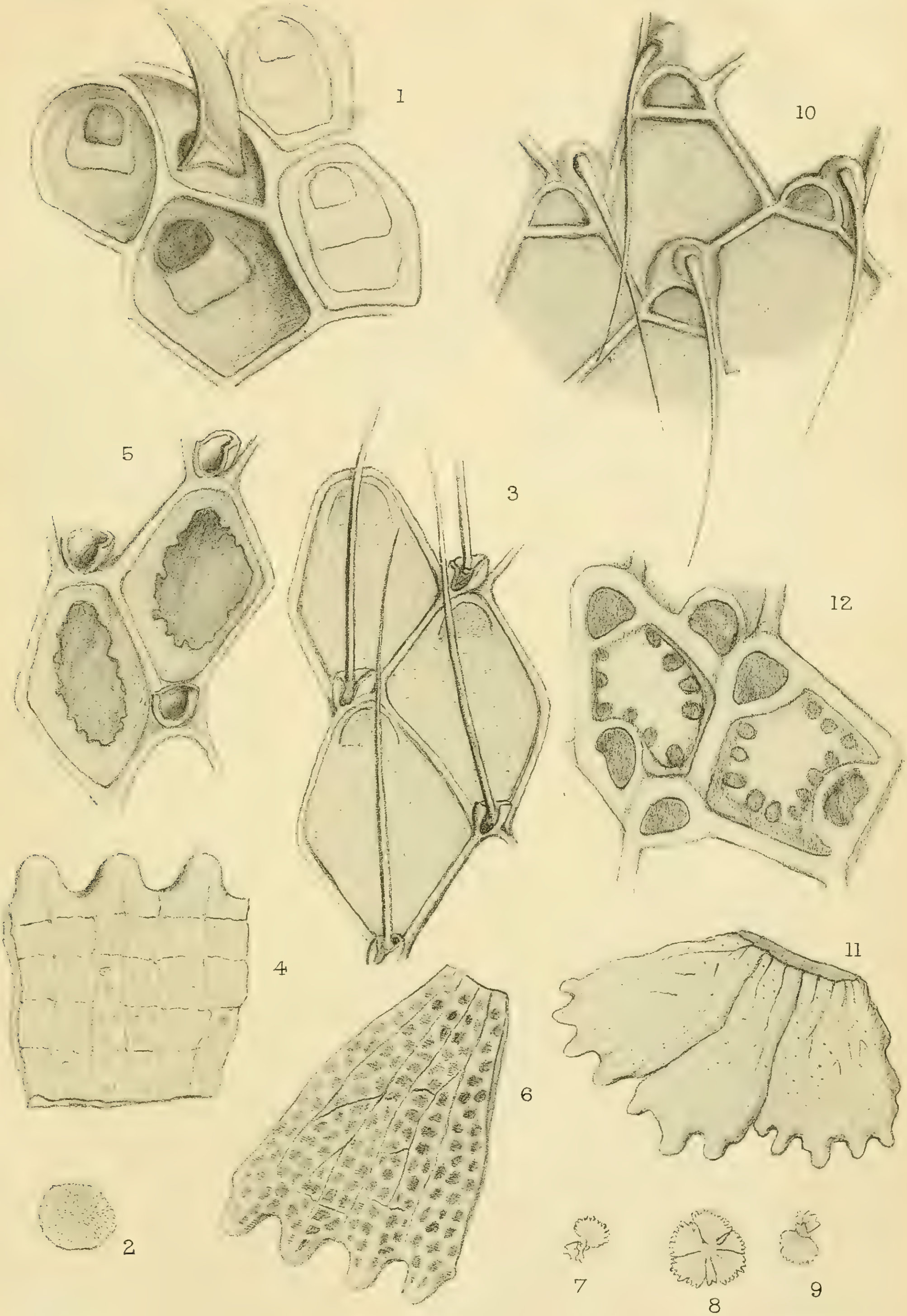

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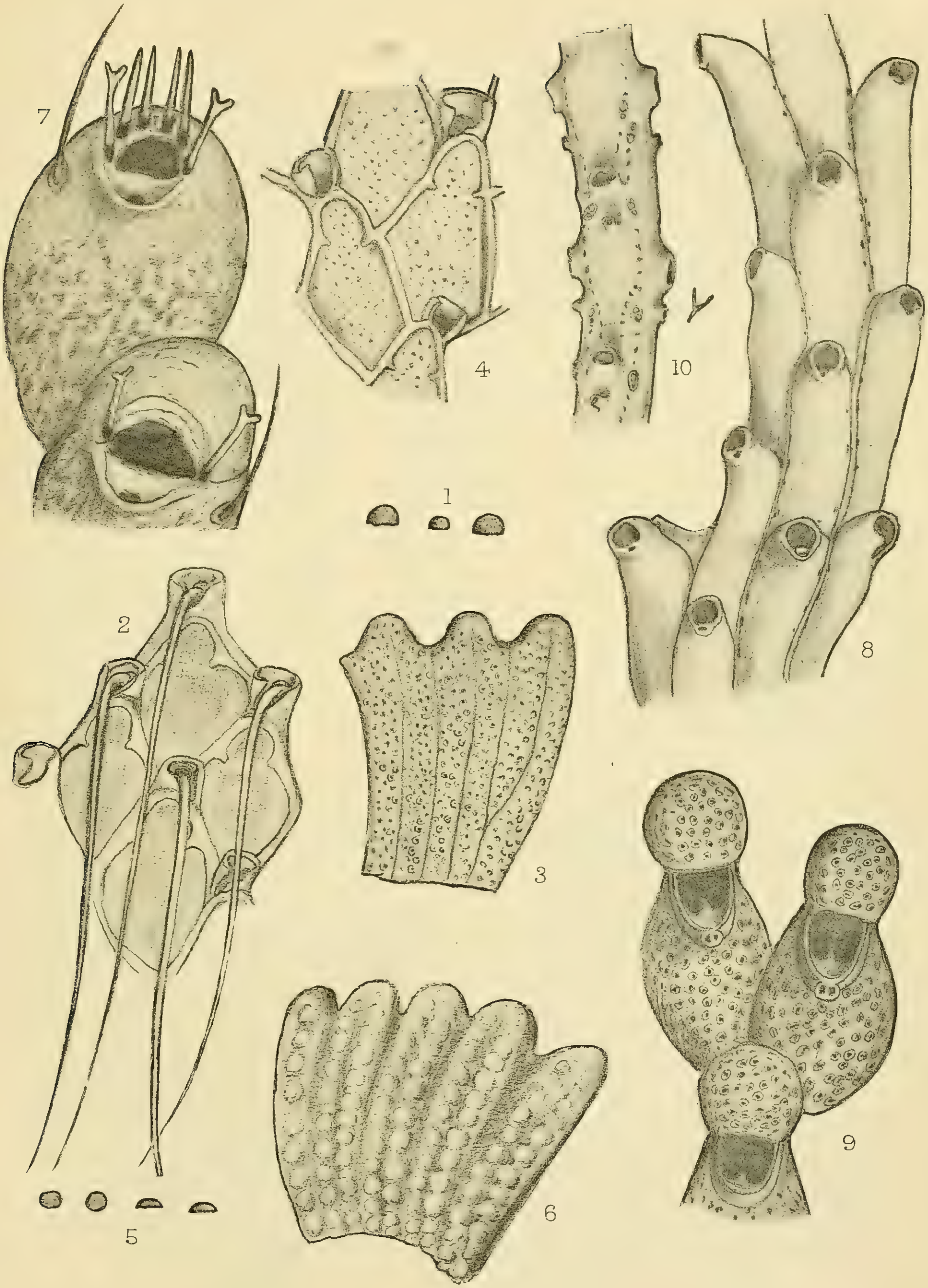

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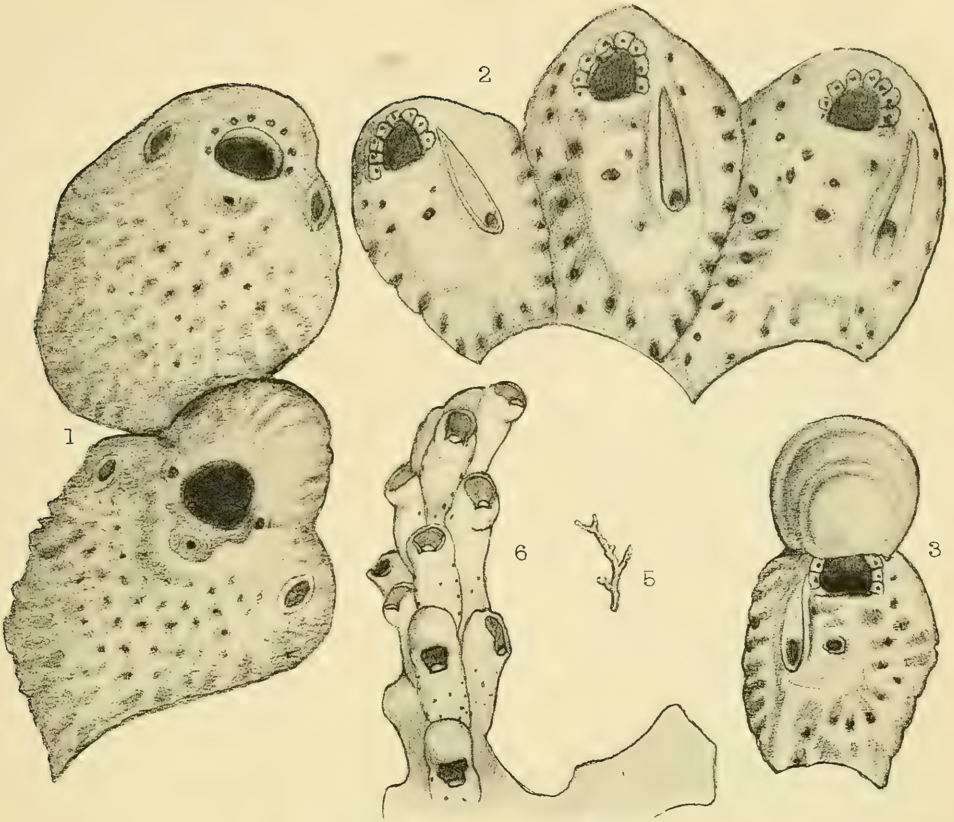

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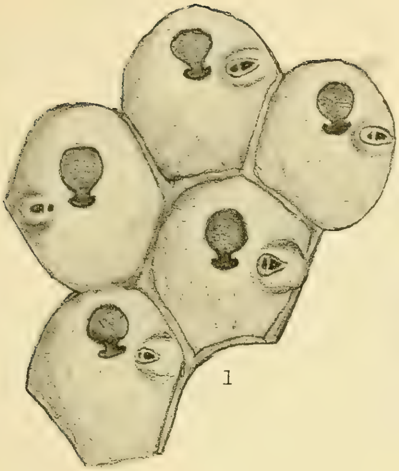
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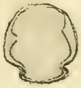
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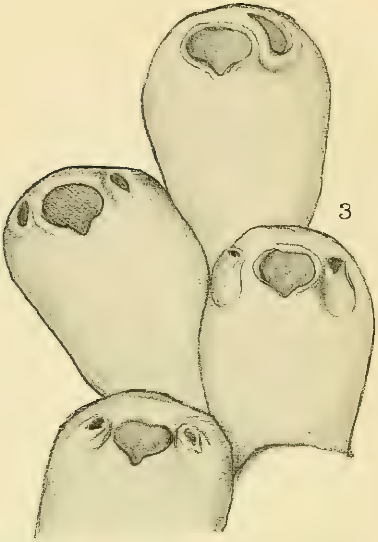
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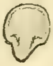
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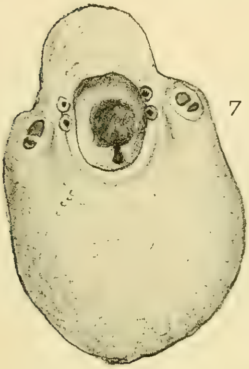
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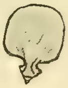
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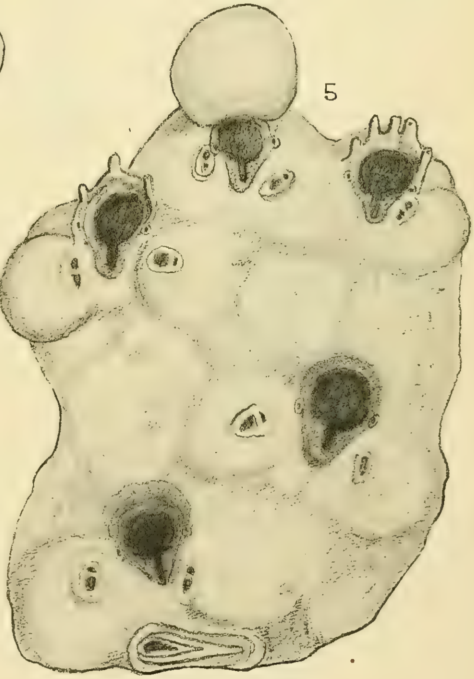
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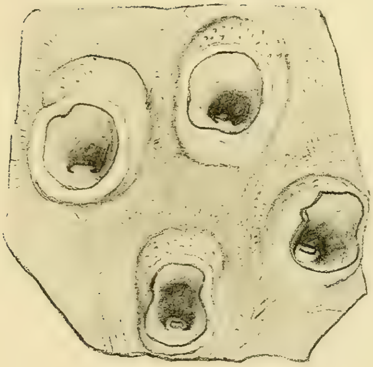
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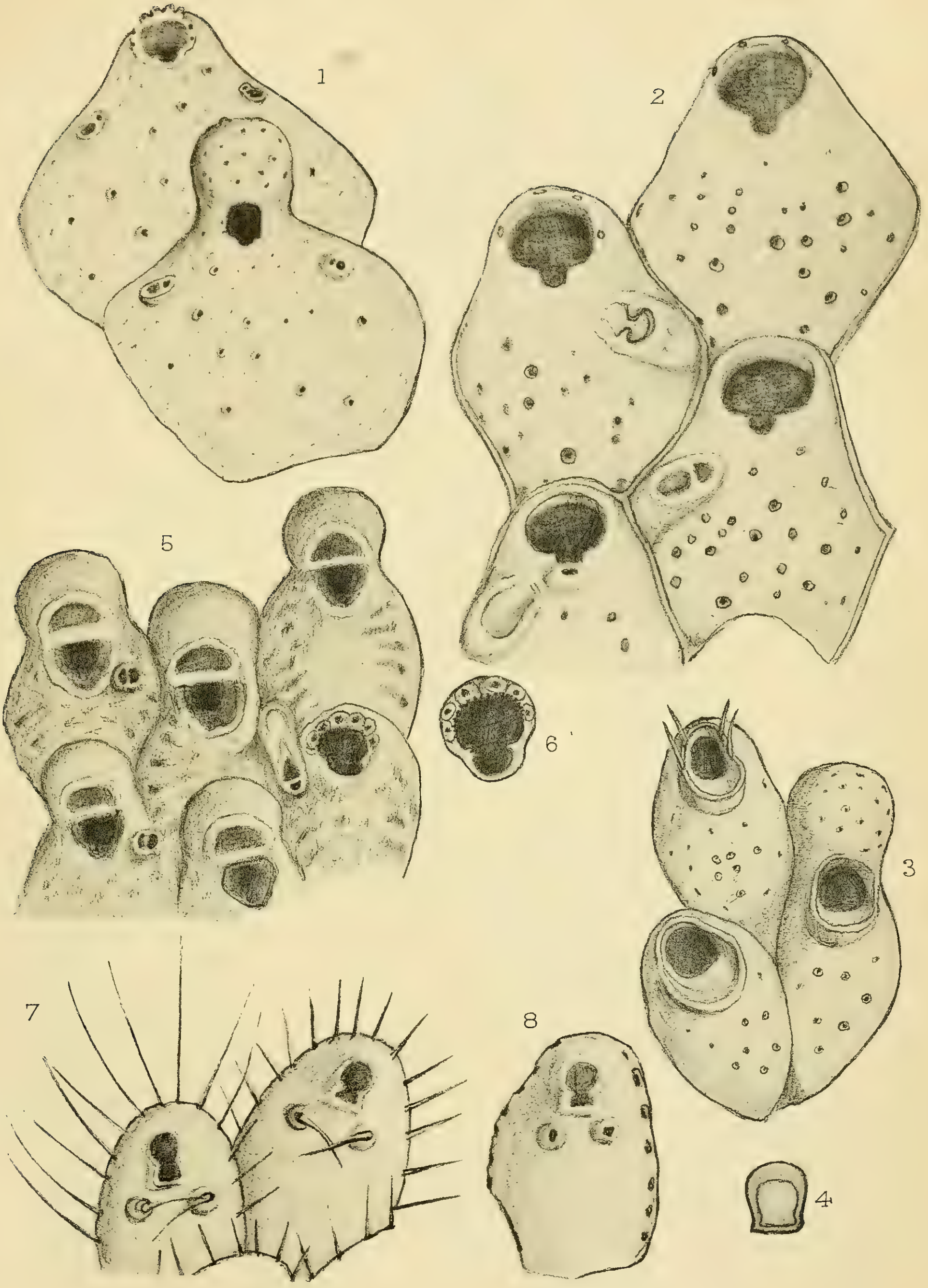
POLYZOA OF MADEIRA.



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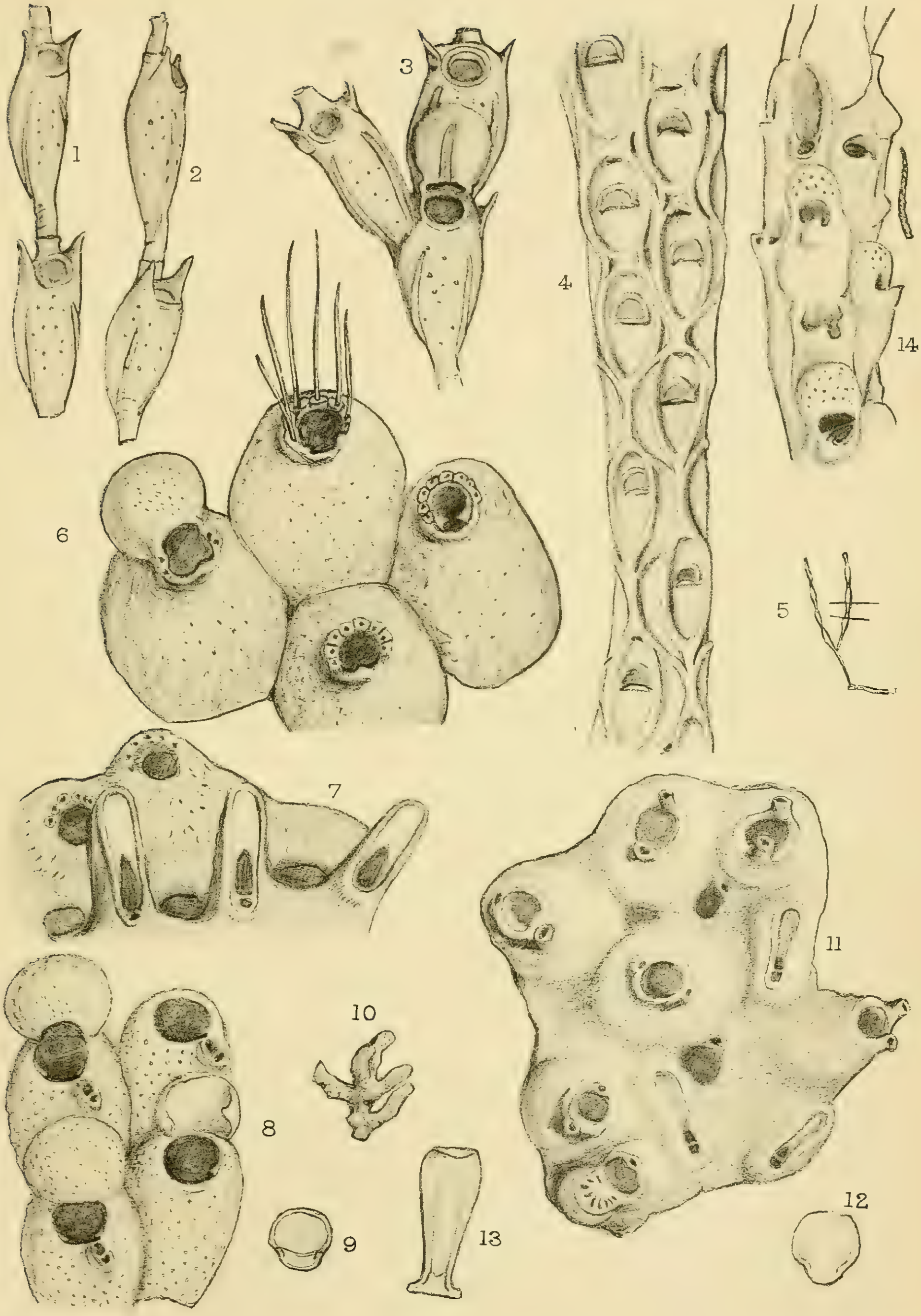

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